IMAGINATION AND ITS PLACE IN EDUCATION

KIRKPATRICK

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IMAGINATION AND ITS PLACE IN EDUCATION

BY

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PREFACE

Science embodies universal truths. Literature expresses truth as seen or exemplified by individuals. Neither literature nor the science of psychology alone can adequately deal with the subject of imagination. Psychology seeks to present what is true of all minds, but in no type of mental activity is there greater individuality than in the exercise of the imagination.

The writer, in his many years of teaching psychology, has enjoyed this subject because tests given students and their reports of introspective studies show that the same laws govern all minds, though they are partly disguised by an infinite variety of image combinations. No topic reveals to students more clearly their mental processes and at the same time shows them that other persons arrive at the same results by different routes. It gives the author satisfaction, therefore, to share with a larger group than that comprising his own students the pleasure and advantage to be derived from a study of so interesting a subject. He hopes that this little book will introduce many to a study of the facts in the realm of imagination as exemplified in their own minds and in the minds of others, especially children, and as revealed in play, science, art, and literature. With this end in view, scientific technicalities and exhaustive treatment have intentionally been avoided.

Although the book may be studied by individuals successfully, it will prove much more interesting and valuable

when used by a group of persons who report and discuss individual observations and make group experiments. It is hoped that the manner of treatment and the exercises at the close of each chapter will make the book especially useful to teachers' reading circles. The references at the close of the book may also prove valuable in giving a wider, more intensive, and varied view of the subject.

E. A. K.

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INTRODUCTION

Imagination has been the Cinderella of the intellectual faculties, so far as the attention and interest of those who are charged with the care and culture of the young are concerned. Educational literature has been filled with discussions of the nature, value, and training of perception, memory, and reason; but imagination has always been kept in the background, — so much so, in fact, that most parents and teachers have only very hazy notions respecting the rôle which this intellectual process plays in human life and the prominence which it should be accorded in education. Nine out of ten persons speak of imagination as though it were not a vital factor in mental operations, — as though it could be ignored or eliminated without loss to the efficiency, stability, or balance of the human mind.

It is true that "Training the Imagination" is a topic sometimes discussed at educational meetings; but anyone who has listened to these discussions will readily bear witness to the fact that the majority, perhaps, of educators who appear to be well informed on most educational and psychological subjects find themselves at sea when they attempt to distinguish imagination from other forms of mental activity, and especially when they discuss the function of imagination in the various branches of school instruction and the part it should play in the educational program.

Professor Kirkpatrick's book has been prepared with a view to clearing up misconceptions in the minds of

parents and teachers respecting the relation of imagination to the other intellectual processes, the varieties of imaginative activity in the adjustments of daily life, the changes in the content and form of imagination that occur in the course of a child's development, individual differences in the prominence, intensity, and quality of imagination, and the proper utilization of this activity in the work of the school. The author has treated his theme as a whole and in its various subdivisions in an unusually concrete and lively manner. His generalizations are all based on data derived from the circumstances and experiences of the daily life of childhood and youth in the city and in the country, and in homes with varying ideals of training and discipline. Many persons have cooperated with him in the effort to discover how different minds work imaginatively under varying conditions and at different periods in mental development. In this way a large amount of accurate and live material has been collected, and typical examples are presented and interpreted in this volume. It makes a document of exceptional interest and value for students of human nature, and especially for anyone who acts as counselor for the young or who gives instruction on any subject in the school or in the home.

M. V. O'SHEA

THE UNIVERSITY OF WISCONSIN

IMAGINATION AND ITS PLACE IN EDUCATION

PART I

IMAGINATION AND RELATED ACTIVITIES

CHAPTER I

PRELIMINARY REVIEW

Making the absent present. The following will serve as an introduction to our subject: "He opened the gate, saw the white cottage through the trees and shrubs, caught the odor of roses and, as he approached the door, heard a joyful cry, saw the door flung open, and felt her arms about him." Is this an account of a man's experience as he approached a suburban home, or is it a description of what he mentally represented as he sat in his office in the city, among far different sights, sounds, and odors? If the latter is the case, we have an example of imaginative activity.

This power of viewing the absent as though it were present is one of the most distinctive characteristics of human beings. Animals have it either not at all or to only a slight degree. For the most part they live in the present, while people occupy their minds for hours at a time with the absent, the past, and the future. An animal is modified by his past experiences, and on that account his future actions will be different, but there is little reason for believing that any animal becomes distinctly *conscious* of those past experiences, independent of the surroundings in which they occurred, or that he pictures far in advance what his actions are to be.

It is because human beings have this extraordinary power to represent the absent that they are able to become

familiar with objects and events distant in space and time and are able to use the results of past experience in representing and planning what they shall do in the future. The animal's mental experiences are determined by the here and now, the man's by what has been and may be.

A popular view of imagination is that it is concerned only with the untrue and the unreal; but this is correct only in the sense that the reality and the truth are not manifested in stimuli immediately present. Imagination may concern itself either with what has existed or may exist in the future, or it may represent what never has *been* and perhaps never will be experienced by any human being in exactly the form pictured. In the illustration given above, the man may be living again in imagination an actual experience and may represent nothing which did not actually happen, or he may be representing what is likely to occur when he goes home at night. Again, he may be representing an experience that he has never had, among scenes that he has never visited or heard described. In all these cases things not present are made real in his consciousness, which is the most distinctive characteristic of imaginative activity.

When the image of the scene is a memory of what actually happened there is less freedom of representation than when new surroundings and events are mirrored in the mind. We may say, then, that the more completely what is not present to the senses is made to seem real in consciousness and the freer this seeming reality is from any actual associated experience of the moment, the greater is the degree of imagination. The man who pictures exactly scenes that have occurred or will occur is using his imagination just as truly as the one who pictures

the unreal and the impossible. The only difference is that in the one case knowledge of the world as it is exercises a stronger controlling influence over the imaginative activity than in the other.

Sources of the material used in imagination. However free imagination may become, it must begin with materials supplied by real sense experiences. A man who has never had any visual experiences has no material for representing how things actually look. If he pictures a beautiful form it is in terms of touch and motion rather than of light and shade, while representation of color as it appears to the eye is utterly impossible to him. He can only conjecture that colors differ, as tactile, auditory, or olfactory sensations differ; and when red or yellow are mentioned he may represent them as resembling one kind or another of the sensations with which he is familiar. He cannot possibly experience in consciousness the sensation felt by normal people when objects of those colors are presented to the eye.

It has often been suggested that animals or beings on other planets may have senses entirely different from those that we possess. Whether such is the case or not, it is utterly impossible for us to represent what those senses might be except in terms of sensations that we have experienced. It is true that we may represent objects entirely different from any that we have ever seen and perhaps from any that have ever existed, but in doing so we must use material derived from actual sensory experiences. We may picture an animal or a plant different from any that we know or possibly combining the characteristics of plants and animals in a way unknown to science, but in doing so we have used material derived

from actual observations. Our image of an entirely new creature is made possible only by combining parts of many separate observations in an entirely new way.

Free use of images. The material used by the imagination consists of images that are like the sensations experienced when the stimuli were present. When these images are arranged in exactly the same way as their originals were in some experience or series of experiences, there is little freedom of imagination, and the process is usually designated as memory or reproductive imagination. When, however, some of the images are modified or transposed and when images derived from various experiences are combined into a new unity, we have a better example of free activity of the imagination. The person who, when the word "tree" is spoken, always pictures a particular tree standing amid certain surroundings has not as great freedom of the imagination, so far as trees are concerned, as the one who pictures the general form of a tree that can be located anywhere and instantly become of any size, species, or shape. An active imagination not only brings vividly before the mind sense experiences, in the absence of the objects producing them, but it exercises great freedom in isolating sensations from their associates and in making new groupings of images. When images can thus be dissociated and combined with others there is a high degree of freedom as regards the material that the imagination may use. The fact that the images are thus free to enter into new combinations does not, however, give the imagination complete liberty when a new complex image and perhaps a series of events is to be constructed. In making such a construction it may be easy to separate

the images from their former associates, but one may have difficulty in combining them in ways that differ greatly from combinations that have previously been experienced.

Kinds of imagination. On the basis of the above facts regarding freedom of imagination, we may distinguish three rather distinct types of imaginative activity. These are, first, reproductive imagination, in which the past is presented to the mind with the images arranged just as they were in the original experience; second, constructive imagination, in which the separate images are combined not according to some particular experience but in accordance with their more usual arrangement or as directed by descriptions; third, creative imagination in which the images are freely arranged in accordance with one's own feelings and purposes.

The first type of imagination is quite similar to memory and may be identical with it. There may, however, be this difference: In memory we know that certain things happened at a particular time and place and in a certain order or relation, while in what is called reproductive imagination there may be less accuracy as to the order and relation of events but greater vividness of imagery, so that it almost seems as if the sensory experience were being repeated. It follows, therefore, that although reproductive imagination and memory are often nearly identical, yet there may be a high degree of imaginative activity with much inaccuracy of memory or a high degree of reliability of memory with a limited exercise of imagination.

In constructive imagination laws of association and volition have a prominent part. The most common use of constructive imagination is that in which it is directed

by words or symbols of some kind. If you are told how the objects in a room have been arranged and are then able to picture its appearance so that you find it just as you expected when you enter, there has been effective use of the constructive imagination. Through association the words call up images of objects and their relations and the unified picture is formed accordingly. If the room and the objects described are familiar, it may be easy to form vivid pictures; but if the arrangement is entirely different from that to which one has been accustomed, it may be difficult to construct the scene as described because of the tendency to reproduce in accordance with former experiences.

What is actually imaged when a description is given conforms in part to the words used and in part to the kind and arrangement of images which are most familiar to us. This may be illustrated by the following description: "As we were driving along the road we saw a house and a barnyard with various animals in it." Some persons in listening to such a description may do little constructing, but merely reproduce vividly some suggested scene with which they are familiar. Those who construct a definite picture are likely to do so in accordance with their usual experience of roads, houses, barnyards, and animals. If a more detailed description were given, the whole scene would perhaps have to be changed. For example, it might be said, "The house is sixty feet long, five feet wide, and forty feet high; the road is of white crushed stone; the fence is a cactus hedge; and the animals are elephants, camels, kangaroos, reindeer, and wolves." One must then change his picture so completely that he realizes that constructive imagination is influenced by habit as much or even more than it is by the exact meanings of words.

In creative imagination one pictures according to his emotions, desires, and purposes, although in doing so he is of course influenced by his previous mental habits. If you are asked to plan how the objects in a room of a certain size and description shall be arranged, for certain purposes or in order to produce the most beautiful effect, you must exercise your creative imagination. If you picture the room as quite similar to a particular model or with the arrangement most familiar, you employ less originality in creating the complex image than if the characteristics of various rooms are combined in such a way as to make one of a new type that is useful or beautiful. Freedom from the usual is one of the marked characteristics of creative imagination, yet if this freedom does not recognize the essential nature of things, the product of one's creative imagination may be neither useful nor beautiful. The inventor and the artist must show freedom in making new combinations, but the complex whole must be such as the nature of the material and the purpose of the creation demand, or it will be of no value.

These three forms of imagination all necessitate the production of images based on original sensory experiences. Constructive imagination involves the ability to separate images from their original associates and to arrange them in new combinations according to directions, while creative imagination requires the same power to select and rearrange images and also the faculty of determining how they shall be arranged in order that some ideal or purpose may be realized. Reproductive imagination is especially valuable in describing our own experiences; constructive imagination, in the understanding and appreciation of descriptions given by others; and creative

imagination, in evolving imaginary descriptions and stories. In the industries reproductive imagination enables one to construct according to a sample pattern, constructive imagination helps one to follow directions and interpret plans, while creative imagination gives power to devise new machines and processes. In art reproductive imagination enables one to reproduce what he has seen, constructive imagination helps one to illustrate a story or poem, and creative imagination is the source of every original conception.

We see, then, that the materials used in imagination are necessarily derived from sensory experiences, but that these materials may be modified and arranged in ways quite unlike those of the real world or they may be arranged in accordance with the actual or probable events of our own lives or those of others. The historian who pictures people as they have really existed is using his imagination in accordance with the facts of particular situations. The novelist who describes imaginary characters which have had no separate individual existence may be directing his fancy in accordance with the nature and relation of things as they are found in the real world, or he may exercise his imagination in representing what will stir the emotions or produce æsthetic satisfaction without regard to the actuality, probability, or even possibility of the existence of such things as he describes. In the first case he is portraying essential but not literal truth, while in the latter case truth is regarded only so far as is necessary to produce the desired mental effects.

The scientist who imagines all substances as consisting of molecules composed of ultimate atoms, or who pictures atoms as electrons or centers of electric forces, is using

his imagination to help him to grasp the truth. The mere fact that things can be imagined more vividly one way than another does not prove the truth of the one theory as opposed to another.

A reader who pictures accurately what is described by the historian, novelist, or scientist is truthfully representing what they have set forth, but some of what is imagined may have no counterpart in the world of objective reality. Imagination is not in itself either true or false; it is merely a mode of representing experiences in consciousness. It is only because the imagination is often occupied with representing the agreeable rather than the actual that there is a tendency to contrast the imaginary with the true and to speak of a liar as one whose imagination is too strong. The impulse to imagine things as one would like them instead of as they are may, of course, lead to unconscious lying, while he who lies intentionally need not necessarily image vividly but may merely strive to make others form pictures which do not conform to actuality.

Imagination as a method of working. There are three principal ways of meeting situations and of solving problems: one method is that of observing and manipulating objects, another, of imaging them, and the third is that of using symbols which represent them.

By the first method one would find how many inch cubes there are in a three-inch cube by cutting it into inch cubes and counting them, while by the second method he would image the three-inch cube as being divided into inch cubes and count without actually seeing them. By the third method he would use figures or symbols to represent the cube and the mathematical process by which he could calculate the number; for example, $3 \times 3 \times 3 = 27$.

If you are asked to tell how many posts placed a rod apart would be required to fence a field eight by ten rods, you could find the number by placing the posts at the proper distances and counting them, or you could imagine the field surrounded by the posts a rod apart and count the number, or, without representing the field at all, you could use symbols standing for distances and numbers and calculate according to the formula, "The number of posts equals twice the length and breadth of the field in rods."

You may determine whether two colors match by looking at both of them at once; or in the absence of the colors you may imagine how they look and decide whether the ribbon seen at one store will match the dress seen at another; or one who is used to dealing with colors may represent each color or shade by a number and letter and can thus designate what colors are to be combined or matched, as is done by the dyer of yarns. The first, or perceptual, method is surest but also the slowest and sometimes impracticable; the method of imagination or representation is quicker, though less accurate, but one that can be used at any time; while the conceptual, or symbol, method, when proper symbols and formulas have been learned, is quickest and most accurate.

The child in building a house with blocks is likely to depend chiefly upon the perceptual method in choosing and placing his blocks. Later he will be able to image the blocks and their arrangement before actually selecting and placing them, while an architect indicates the plan of a house by means of figures and lines.

There are great differences in people as to their ability to deal with things in their absence and as to the methods

they employ. Some may use images, others symbols. Some persons must have the things before them, others may represent them so vividly that it is not necessary to have the objects present, while a few with more abstract concepts need only symbols and formulas in order to determine conditions and quickly form a plan of action. Imagination may therefore be regarded as a mental process in which images of things, persons, and events take the place of the sensations that may be or have been produced by them. It is also a mode of thinking in which images of experiences rather than symbols standing for those experiences are the materials with which the mind works.

Illustrations and exercises. The following are reports of individuals as to the use of imagination. It will be well for each reader to note down instances in which he uses his imagination effectively and of other cases when it fails to serve his purposes or leads him into error. From many such observations he can form an idea of the part that imagination really plays in his mental life.

Images play a large part in my existence. While reading books I almost always imagine myself to be certain characters, while acquaintances take other parts. But when reading books which are not stories I do not image the different characters as much as I do the circumstances.

In day dreaming, when I close my eyes I can always see things just as if they were real. I also feel sensations very keenly as they impressed me in the first place. For instance, one day last summer I went with a family to Mt. Wachusett. My girl friend and I tried to see how far we could run up the Indian trail without stopping. In thinking of this day's outing this feeling of actual fatigue is uppermost in my thoughts.

The next thing I think of is the cool place we found in which to eat our dinner, and how good it seemed to sit down to eat after being so tired. I can actually picture the whole group as we walked, ate, or did other things throughout the day.

I always see in my "mind's eye" the thing itself, hardly ever words or definitions. For instance, I think of a day in camp. I see perfectly the glassy stillness of the lake at sunrise; I hear again the bugle sounding the reveille in the boys' camp across the bay; I hear the rattle of dishes in the kitchen, smell the coffee, and the fish frying; and so on throughout the whole day. Every little incident comes back into my mind, and I see and hear and live again all those delightful experiences. If I close my eyes now I see plainly the tiny bedroom in the cottage, hear the rustle of the leaves and the soft lap, lap of the water upon the rocks of the shore at night. So it is with all my past pleasures —

> They flash upon that inward eye
> Which is the bliss of solitude.

In thinking of people I usually see them at the sound of the name. On some occasions, however, I have an auditory image, as of the trilling laugh of my favorite cousin, or hear again the peculiar tones in which someone has spoken.

Cicero is an exception. I never picture the man, but the first page of the textbook and his first oration against Catiline. If a book were given me, opened at that place, with my eyes shut I believe I could put my finger on the words "O tempora! O mores!" so vividly do I see them on that page.

I cannot image the fragrance of a rose from just the abstract idea "rose," but let me form an image of some particular rose or roses and I can image their fragrance and thorns as easily as their beauty.

My imagination often reminds me of my duties. If I do not feel like writing home some night, I picture mother looking in vain for a letter from me, and I write the letter.

I am able to understand the people I come in contact with by imagining their feelings and motives. I am able to understand the different studies I take by picturing what I study instead of just reading it.

In imagining a day's outing I thought of a certain grove near a pond where I had a picnic five years ago. I saw the baseball game in which I was pitching and was knocked from the box. These images were plainly visual. Then I had a motor image of the races in which I strained every nerve to win. Then came my gustatory image of eating a large quantity of sandwiches and ice cream and drinking tonic. The motor image appeared again of my struggling to complete ten strokes in the water before giving up. In connection with the baseball I could place an auditory image, that of hearing encouragement from members of my side.

I can never recall the image of a person's face, and rarely of a person's form. If I try hard to do so the image is distorted or unnatural. I can remember only once in my life when the image of a face has come to me vividly; that was the face of my dead uncle.

Landscape scenes, no matter how familiar, are never imaged in my mind except in a very vague and fragmentary way. My lack of imagination in this line does not prevent me from enjoying very much descriptions of scenery in books, though it may be only the beauty of the language that impresses me.

My poor imagination has been, I think, a hindrance to me in English composition and in the study of geography. For instance, when the Mississippi River was mentioned I thought not of a river but of the line representing the river on the map.

I was surprised to find how much and to what good use I could put my images, vague as they were, in solving problems in arithmetic.

When I am sewing, making a dress or hat, I picture how the dress or hat will look when finished. If I have an untrimmed hat, I picture how I wish it to look and then trim it or have it trimmed.

When I am to go to a strange place for a day or two, before I go I picture how I think it will look.

At home many times I am told that we are going to have a certain dish for supper or dinner, and I am disappointed when it does n't taste as I had imaged it would.

When trying to write out notes for folk dancing I often seem to see the girls in the different positions and sometimes I can seem to hear Miss L. giving directions, and thus I can write the notes more fully. When answering questions in "Minimum Essentials" in geography I often visualize the map of Europe, or if I want a particular city I locate it mentally on the map.

CHAPTER II

MENTAL IMAGES

Variety, number, and vividness. There are as many kinds of mental images as there are varieties of sensory experiences. In recalling your breakfast orange this morning you may have an image of its shape and color, of the sound it made when you dropped it, of your sensation of movement in reaching for it, of how it felt to your hand as you grasped it, its odor as you smelled it, and its taste as you began eating it. You may also imagine the feeling of weariness, hunger, headache, or well-being that you experienced at the same time.

In imaging the visual appearance of an object you may think not only of its form and size but also of its color, as orange, red, green, or blue. In imaging the experience of touching an object you may represent not only its feeling of smoothness or roughness but also its temperature, as warm or cold, or the pain that it may have produced if it were sharp or struck the skin with force. In representing the taste of an object you may image it as salt, sour, bitter, or sweet, while in the case of smell the varieties of imagery are indefinitely numerous.

It is quite probable that of the various possible images some appear much more frequently and with greater vividness than others. If you recall your breakfast table this morning, your images may be chiefly of the visual appearance of the various objects and persons, or you may

mentally hear the clatter of knives and forks and the voices of the various people at the table. Again, the odor of the food, its taste, its contact with the hand or the tongue, or the movements made in procuring and eating it may be most prominent.

In anticipating what is likely to occur at a banquet or a reception your mind may be filled with visual pictures, with auditory images of voices and music, with images from any of the other senses, or from general bodily feeling. Any or all of these may appear, but it is probable that one sort of imagery will occur much more frequently than others in your imaginative pictures and also that this, or possibly a different kind of imagery, will be more vivid ; that is, more like a sensation than any of the others.

With a large proportion of people visual images occupy the most prominent place, auditory next, followed sometimes by one, sometimes by another of the other varieties. Some persons depend almost entirely upon one kind of image, but most people form all kinds to a greater or less extent.

There are a few whose images of objects are so vague and indefinite that they assert that they have no images worth mentioning. When you name an object such as an apple they *know* its shape, size, color, etc., but they do not *image* it with sufficient vividness to produce a conscious state like that experienced when one sees, smells, or eats an apple. It is difficult for those who form vivid images to understand how it is possible to have *any* idea of an apple when it is not present without forming distinct *images* of the sensations that it gives, but nevertheless we must accept the statement of many observers that such may be the case.

Control of images. Many persons who under ordinary circumstances have only vague or fleeting images of the objects of which they are thinking are able, if they wish to do so, to form vivid images and hold them in mind for several seconds. On the other hand, some people who ordinarily image vividly in all their thinking may be unable to keep any selected image in mind and make it more distinct. It is not at all unusual for those who occasionally form vivid images of smell to be utterly unable to form *voluntarily* an image of even the most familiar odors. In general, however, the images that are spontaneously most prominent in consciousness are also most easily controlled.

A few people seem to have almost complete control over certain images so that they can deal with them just as they would with real objects. A painter, for example, may study his model properly posed, then dismiss her and paint from the mental image that he has formed; or a musician may image so vividly the tones corresponding to a musical score as to know exactly how it will sound when played. Such vividness and power of control of images are, however, rare. Most people believe that they have more vivid images and better control over them than they really possess. You may think that you have a clear and accurate image of a chair, a dish, or a postage stamp, but if you are asked to draw it or describe it minutely, it will usually be found that the image is not nearly so detailed and accurate as the actual perception.

Control of images may be tested not only by representing mentally the sensations an object has actually given you but by imaging how it would appear under various conditions. For example, if an object has been seen only from the front in its natural size and position, can you

imagine how it would look seen at an angle or from above, or if its dimensions were greatly enlarged, or if it were placed much nearer or farther away, or if its color and its surroundings were changed? People often purchase objects that prove entirely unsatisfactory when placed in their homes because they are unable to represent their appearance in certain surroundings. A person who can image a familiar tune as played upon the piano may be unable to image the same tune played on a violin.

Power of constructive imagination depends very largely upon the degree of control that one has of his images. This is illustrated by the following: A three-inch cube, red on the outside and white on the inside, is cut into inch cubes. How many cubes will there be with one red surface, how many with two red surfaces, and how many with three? Another test is to image a long word and then see if you can name the letters backward correctly and as rapidly as you could if you were looking at the word.

Why some images are usually more prominent than others. Extensive experiments show that most people form more visual images than any other kind, and in a considerable number of cases the visual images are also most vivid and most completely under voluntary control. There are several reasons why this should be so. In the first place nearly all material things are visible, while many of them have neither taste nor odor. Again, in perceiving an object that may yield several kinds of sensation we almost always see it many more times than we hear it, touch it, taste it, or smell it. It is not at all strange, therefore, that when that object is represented in our minds, its visual appearance is the most prominent and perhaps the only image that is formed.

Again, if we notice the ways in which the various sense organs are used we shall find that the eye is under much better control and much more active than any other sense organ. We can not only shut out all sensation by closing the eyes but we can instantly turn them away from what we do not wish to see, and fix them upon some other object. It is not easy to close the ear to all sounds, and it is impossible to turn completely from one sound to another. We can get sensations of touch from any object near us, but a much longer time is required to approach objects and touch them than to look at them. Taste is much like touch in these respects, and many objects yield no taste whatever. With regard to olfactory sensations there is very little possibility of controlling them except by closing the nostrils or keeping at a sufficient distance from the source. Since the visual *sensations* are so easily and continuously controlled it is not strange that we should also develop ready control of visual images.

The prominence of visual imagery has also been increased by the conditions introduced by modern civilization. Visual language and the extensive use of pictures and diagrams have greatly stimulated visual activity. Among people who read little, auditory images are often decidedly prominent. This applies both to children who have not yet learned to read and to adults who make little use of books and papers.

Verbal images. Some persons instead of imaging things image the words or symbols that stand for them. Your own tendency in this respect may be discovered in the following way: Go over carefully in your mind your experiences at a picnic or a party, or make out plans of what you are going to do on a certain day. After you have

done so notice to what extent your mind has been filled with images of things and events as they have appeared or would appear to you, and to what extent it has been occupied with words suggesting or describing those objects and events. Some persons will find these images to be almost wholly concrete, while a few will have chiefly a series of images of words as either seen, heard, or spoken. Some will have both kinds of imagery, and in many instances if a person is asked to describe the scene that he has been picturing, many of his concrete images will give place to verbal, that is, images of words. Others, however, speak or write words with little or no previous imagery of what they are to be.

Such an experiment as this would seem to reveal the fact that definite images, either concrete or verbal, ordinarily play a minor part in the thought processes of some individuals. They become conscious of various events and describe them, but with only faint and fleeting images of things or words. It is not improbable, however, that many persons who think that images are present to only a slight extent in their ordinary thinking do in reality form motor, or kinæsthetic, images. They experience again the movements that they made when an event happened, or the movements involved in speaking or writing the words describing it. Such imagery is prominent in many people, but the individual is not always distinctly aware of the fact. This kind of image is often mingled with other kinds and with actual sensations of movement to such an extent that it is not noticed. Many people who think they have distinct images of taste find, upon more careful observation, that they are only imaging the motions of the tongue and lips, and perhaps actually making such

motions, while genuine taste images are scarcely present at all. In a similar way instead of imaging the feeling of objects to the skin we image the movement of a finger over the object. Even visual images are closely associated with the actual movements of the eye and with images of such movement. Again, in using verbal images actual and imaged movements play a large part. It is safe to say that motor, or kinæsthetic, images figure largely in the mental operations of all persons, whether they seem to have much or little distinct imagery, either concrete or verbal. On the other hand, many people who think that their motor images are very vivid will find upon close observation that what they had supposed to be motor images are really sensations of actual movements that they are making while engaged in thought.

Motor images represent our reactions to things and events. As sensations are merely signals to which we react in appropriate ways, it is more important to us to know what to do when a certain sensation is experienced than it is to observe the exact character of that sensation. It is natural, therefore, that in representing past experiences, or those that may come in the future, the action involved should hold a prominent place. For this reason actual movements and images of movements play a large part in the mental operations of all persons whether they have much or little vivid imagery of other kinds.

EXERCISES AND ILLUSTRATIONS

Read the following sentences and notice which of the images aroused by the italicized words are most vivid:

1. The *dog* is one of the most useful of animals. There is no musical instrument equal to a *violin*. Not all churches have *bells*.

He ordered *pork* for dinner. At breakfast he had *oranges*. Of all flowers I like *roses* best.

2. To test control of images, form as vivid images as you can (*a*) of the taste of sugar (not how it feels on the tongue), (*b*) the odor of violets, (*c*) the feeling involved in the movements of running upstairs, (*d*) the color and shading of an apple of some familiar variety, (*e*) the pitch and quality of a friend's voice, (*f*) the exact color of a friend's eyes.

3. In the case of symbols notice in what way you think of names, figures, formulas, etc., whether as they sound or as they look, and in which form you can best hold them vividly before the mind. Notice also whether you make slight movements or image movements as you think the symbols.

4. Test your verbal images by timing yourself as you try to spell backwards familiar words. The average time required by adults for spelling backwards such words as the following: "constancy," "treatment," "carpenter," "respected," was found by Professor Gordon to be about six seconds for those who have good visual images and eight seconds for others.

5. Compare your experiences with the following observations that have been made by other students:

Pictured sensations are very common to me; in fact, I cannot imagine any condition, hunger, joy, want, or misery that would be impossible for me to feel and see mentally. Visual images are more numerous in my experience than any other, while auditory, olfactory, and gustatory are next in order. In visual images I picture the past (actual occurrences), the present, and a wonderful future. A word suggestive of a past experience will bring the entire scene and even the entire day to me as plainly as if I had seen it on a moving-picture screen. If the ocean is represented I actually see its motion, smell the salt breeze, the old wharves, the fish. If the country is pictured I smell the pine woods and hear the murmur of the wind in the branches. Events of a day follow rapidly in a short space of time; although each is plain and clear in detail.

In ordinary conversation mental images are continuous; in fact, in singing, studying, playing, walking, I use imagery extensively.

I realize into what misery one's imagination may lead one, and I try to control mine to some extent; however, it is very strong, and visual images are almost always prominent. I picture the impossible also, although the *possible* and *probable* are more common.

I have spoken of olfactory and auditory sensations which I often experience; gustatory is perhaps equally recurrent. I can taste the salt spray of the ocean, bananas and cream, watermelon, sulphur, etc.

I could write indefinitely of mental images, because I have them almost continuously, and concerning everything in this world and the next.

The word "coffee" brought to my mind a cup of coffee standing on a table, and then I thought of the odor. The first image was *visual*, and the second was of smell.

I tried five other experiments of this same kind. The words "cow" and "horse" brought to my mind a cow and a horse which we have at home. The word "mountain" brought to my mind Mt. Wachusett as we can see it from the dormitory windows. At the word "box" I saw a small pasteboard shoe box. At the word "river" I saw Millers River at a certain point where I had been accustomed to cross it on my way to school. All these were visual images of the objects, and in each case they were memory images.

My images are mostly visual, then gustatory, then olfactory. In fact, when anything at all is spoken about I see an image of it. Always I form visual images and sometimes others in addition.

It seems that the visual image is most prominent; in almost all cases the visual image comes first, auditory second, and so on. Usually the image recalls some personal experience or the time or place of occurrence.

CHAPTER III

IMAGES AND PERCEPTS

After-images. Many persons have noticed that sensations of sight, touch, or sound may continue after the stimulus producing them has ceased. This phenomenon can easily be studied, especially in the case of the eye. If one looks for a few minutes at a window, then turns the eye upon a gray surface or a wall, he will see an outline of the window; or if he will look at a brightly colored spot steadily for several minutes and then look at a gray surface, he will perceive a colored spot shaped like that at which he has been looking and usually of a color complementary to it. The term given to this phenomenon is "after-image," although "after-sensation" would probably be more correct. Careful experiment shows that none of the sense organs respond instantly when they are stimulated, and also that after the stimulus ceases their activity continues for a short time. It is to the latter fact that after-images are due.

After-images are of two kinds, positive and negative. Positive after-images seem to be the result of continued activity of the sensory apparatus of the same kind as that incited by the stimulus, while negative after-images are the result of the kind of activity which takes place after the sense organ has become fatigued. Early in the morning,

when the eyes are fresh, if one glances at the window and then at the wall, he will see a bright outline of the window; while if he gazes at the window for a while and then looks at the wall, the outline of the window will be dark. If one looks at a red object for an instant and then at a gray surface, he may see a red spot; but if he fixes the eye upon the red spot for some time and then looks at gray, he will see a green spot. In each case the first was a positive and the second a negative after-image. Such images as these are of an entirely different sort from those usually known as *mental* images.

In the case of a mental image the activity excited by the stimulus to the sense organ has ceased, and yet it is possible for one mentally to experience what affected his senses minutes, hours, or years ago. It is supposed that in the case of a mental image the same nerve centers in the brain as those affected by the original stimulus to the sense organ are reëxcited by nerve impulses from some other portion of the brain. Whether there is also some reëxcitation of the nerve elements in the sense organ is a disputed point. In any case it is clear that a mental image proper is not wholly or chiefly excited by immediate stimulation of the senses.

Hallucinations. As has already been stated, some persons can bring before the mind images that are almost as vivid as sensations from the real objects. If this were common and if images differed from sensations in no other respect than in vividness, great confusion would result. If you imaged a person sitting in an empty chair opposite you, you would be likely to think the person was really there. When you form such an image and look directly at the empty chair, if the image were stronger than the

sensation, the back of the chair would be invisible. If, however, the sensation is more intense than the image, you are forced to see the back of the chair and cannot, therefore, believe that it is occupied by the person you have imaged. If your eyes are closed it is much easier for you to believe that the person is really there. There are persons who occasionally have images that rival sensations in intensity. One lady who was frequently troubled with such mental pictures was compelled to use some other sense than sight for testing the reality of her perceptions. For example, once when at a reception she was told to take a certain chair in which she saw someone sitting. She hesitated, then put out her hand to the figure, and, finding nothing, took the chair. In general there is such a difference between a mental image and a sensation that if the two are opposed to each other there is no trouble in distinguishing between them.

If, however, an image is vivid, and there is *no* contradicting sensation, there may be difficulty in determining whether the object imaged is present or not. Even then, however, the image usually does not seem real. This is partly because one is generally conscious of its having been called into mind voluntarily or by some association and partly because the sense organ is not *felt* to be active. The most favorable condition for mental images to be indistinguishable from sensations excited by present objects is that in which the sense organ is excited in an indefinite way while a mental image is being held in mind. In half darkness, when the real outlines of objects are invisible, it is easy to see almost any object one may image and to believe that it really is present. This is the reason why ghosts, wild beasts, etc., are frequently seen in the

twilight. The feeling of fear arouses an image of that which is most feared, and the indefinite sensations from some real object give the feeling of reality which makes the person believe that his mental image is a genuine percept of the imaged object.

In such cases one has experienced what may be called either a hallucination or an illusion. It is generally held that if there is *no* objective stimulus corresponding to the mental image it is a hallucination, while if there is an objective stimulus that is modified and misinterpreted it is an illusion. It is, however, impossible to draw a sharp line between hallucinations and illusions of this type. A sense organ is usually being stimulated in some way when the image is formed, and whenever a hallucinatory image seems to be real it is probably because the sense organ has had *some* stimulus that harmonizes with the image. Doubtless movement of the sense organ is usually also a factor in giving reality to such images.

The following is a case of auditory illusion which, if there had been no analysis of the situation, might have been classed as a hallucination:

One year ago I slept in a room with a porch roof just outside my windows and a large tree near. In the middle of the night I awoke, and as I lay listening I could hear voices; then a ladder was placed against the side of the porch, and I heard steps mounting the ladder; then whispers and sounds as of two men crossing my porch roof. The window was slowly opened and more steps were heard.

I screamed for help. Mother came, and we discovered the steps to have been the branches of the tree rubbing and bumping on the corner of the house, while the whispers and the voices were the leaves rustling in the wind.

In some cases hallucinations are doubtless caused by irritation of a sensory nerve. A common example of this is found when quinine produces a ringing in the ears or when pressure on the nerve trunk at the elbow produces a tingling in the fingers. Persons who have lost a foot frequently feel discomfort in an absent toe, caused doubtless by some irritation of the nerve originally connected with that member.

Hallucinations, when they not only seem real but are believed in, in spite of the testimony of other people and of other senses, become *delusions*. In such cases the individual is no longer able to distinguish between the world of images and the world of real objects. This is a common condition of many persons who are insane, and frequently accounts for their peculiar actions. Temporary hallucinations are often produced through illness and by the use of drugs. Fortunately most people in normal health have no difficulty in distinguishing between their mental images and their real experiences with objects that are present.

Suggested and suggesting images. There is a kind of illusion, however, in which images play a considerable part, that is very common. Most objects with which we are familiar are able to give us several kinds of sensation, and when we get one of the sensations we are likely to image the others. This is the reason why one may almost taste the food which he sees, or feel the roughness of a file at which he looks. If one is led to form an image of a sensation which has frequently been associated with one that is actually being received, he may think that he is also receiving the sensation which he has imaged. If, for instance, one has seen an atomizer and smelled the

substance diffused in the air by it, it is generally not difficult, if you speak of the odor of violets and then use an atomizer containing water only, asking him to notice what the perfume is, to make him think that he smells violets. If a man is given the idea that he is to be bled, and then his arm is slightly pricked and some warm water allowed to flow over it, he will almost surely think he is bleeding. It is claimed that in France a criminal was killed by this process of mentally bleeding him to death.

It has been found in laboratory experiments that if one has had the experience of a wire's becoming hot when an electric current is turned into it, he will feel the wire becoming hot soon after seeing the movement of turning on the electricity, although no current is really turned on.

In some cases a spot resembling a burn has been produced on a person's skin by applying a postage stamp to it, after giving the subject the idea that he was to be burned. In such cases it is probable that imaging the spot being touched causes an increased flow of blood to that part, and hence there are physiological reasons for the redness that results. Illusions of this kind are frequent and easily produced in a slight degree, yet they are generally quickly discovered and corrected.

Although mental images may cause one occasional illusions, they serve an important and useful part in our perceptions. If something has been lost and you join in the search for it, you always wish to know what it looks like. Your chances of finding it are very much increased by holding in your mind an image of its appearance. What is true under these circumstances is true of all our perceptions. If we form some sort of image before looking, we perceive much more quickly. If you are expecting to

see a certain person in a crowd or to hear his footstep approaching, you will realize his presence much more quickly than if you have no such image in mind. Even a familiar acquaintance may not be noticed or, if seen, may not be recognized immediately if he is in unfamiliar surroundings.

Anticipatory images of what people are about to say help us to understand even when they speak indistinctly, and in a similar way we may be able to read with rapidity poor writing or dimly seen print. The ability thus to anticipate sensations increases the speed of all our reading and is of equal value in our reactions to people. The skilled boxer, basket-ball or tennis player continually anticipates his opponent's movements and thus prepares for them in advance.

Standard images. As we become familiar with the numberless objects around us we form what may be called standard images which play a considerable part in our perceptions and judgments. These standard images help us to translate from one sense to another. We see an object of a certain size, and we know just about what sensation of weight it will give if we lift it. We see an object at a distance of ten feet, and by means of our standard ideas of the appearance of objects at various distances we are able to compare it with another object two feet or ten rods away. Each species of plant and animal has for us a standard size and appearance, and we compare any individual specimen with this model and judge as to whether it is large or small or in what way it differs from the usual. These standard images of form, size, and appearance of different classes of objects and of different units of measure are of great use not only in our perceptions

but also in constructive and creative imagination. When we listen to a description mentioning objects such as apples, dogs, horses, fences, trees, etc., our standard images of these objects appear. If descriptions are given in detail, we modify these images accordingly. Accurate constructive imagination is possible only when standard images are formed and can be correctly compared.

The notes of the musical scale help to form standard auditory images that are useful in music, although there may be much variation in the loudness and quality of the notes as sounded by different instruments or persons. Words often heard also lead to the formation of standard images which aid in recognizing those words whatever the loudness or quality of the tones in which they are spoken. In a similar way, though to a less extent, there are standard images of weight, sweetness, coldness, etc.

EXERCISES AND ILLUSTRATIONS

1. Experiments on after-images should be made and the results compared with those obtained by others.

2. Examples of illusions due to imagination and of hallucinations should be recalled and explained.

3. It will be interesting for several persons to compare the standard images that they usually form of certain classes of objects, such as "horse," "house," "soldier," "knife," etc.

4. Classify the following illustrations and compare them with some of your own:

One night I spent about two hours listening to ghost stories. After a while I had occasion to go out of doors. I looked a short way ahead of me. There I saw what appeared to be a person in a white shirt with blood running from his arm as if he had been hurt. My brother investigated and found a bundle of rose bushes and bulbs

with red labels, covered with a piece of white canvas, which had been delivered that afternoon. After hearing the ghost stories my imagination pictured different unreal images.

In reading a book, especially if the scene was laid in foreign countries, I have been so interested and seemed to have so fully imagined myself in the same place as that mentioned in the book that on being disturbed it took me a second or so to find I was in my own home.

I was sent into another room to get a box which was left on the table. I had n't seen the box, but I formed an image of it, on the corner of the table, while I was walking into the room.

I read a very good description of a summer day's outing, and before I had finished I found that I was fitting each incident with a day's outing which I had.

When anyone describes to me a scene, a gown, a house, I can see it vividly. When it is n't described fully I make the picture to suit my own taste. For instance, if someone is describing a bungalow I have not seen, if I am told about the living room and nothing whatever is said about a fireplace, I see a fireplace in the room, unless the person distinctly tells me there is none. As the person continues to describe something, I get ahead of what is being said and imagine how the object looks. Sometimes I am right, but more often my visual image is incorrect.

If Bunker Hill Monument is mentioned I think of a hot day and feel weary. This is due to the fact that I ascended the monument on a hot day.

If a person describes an odor foreign to my sense of smell, I am sure to imagine some odor even though it may not be the right one.

CHAPTER IV

MENTAL LAWS AND IMAGINATION

Mental habits. Persons who have given the subject little attention are inclined to think that mental imagery is largely a matter of chance. Careful observation and a record of one's images will, however, reveal the fact that the same circumstance or word often brings up the same image. Sir Francis Galton was one of the first to notice this truth. He made a record of the images suggested by a list of words, then at long intervals and in various surroundings he again made records and was surprised to find that in a large proportion of cases the same image was suggested whenever the corresponding word was seen. In a similar experiment made by the writer upon a class of college students, it was found that after the lapse of a month, during which there had been a week's vacation, nearly one half of the students had the same images that they had the first time. In most cases those who did not record the same image thought in both experiments of some recent experience. These facts suggest that the coming of images into the mind is governed by law rather than chance.

The following experiment gives a very clear demonstration of the principal law concerned. If pupils look at a series of cards with a letter and a number upon each, and some moments later letters of the alphabet are named with the request that numbers be written next them, it is

found that about 5 per cent will write the numbers that were on the cards with the letters. If a letter has had the same number beside it twice, that number will be given in about 10 per cent of cases; while if the same number has appeared with the same letter three times, nearly half of those taking the experiment will write that number when the letter is named. These experiments, as well as many others that have been performed in psychological laboratories, demonstrate beyond question that the coming of images into the mind is determined by the laws of habit.

The primary law of habit is the law of repetition. If two impressions have been received together or in immediate succession, when the first is again received the second will be reproduced in the mind. The more frequent the association of the two impressions the more surely will this be the case. In the experiment previously named, if a letter has been associated once with one number and three times with another, the latter is reproduced in a much larger percentage of cases. Frequency of repetition is by far the most important law influencing imagery. But there are several important modifications or variations of this law. (1) If a single experience in certain circumstances has produced a deep impression because of the emotion aroused or because of effort associated with it, it may have a more lasting effect than several associations with something else that were of slight intensity. (2) First impressions are nearly always stronger than later ones. (3) Experiences that have been recently associated make a stronger impression, and one more surely recalls the other, than when a longer time has elapsed. Anyone who will record the images aroused by certain words and situations will usually be able to determine why those

images came rather than others that had been associated with the same words or circumstances.

If the image that comes does not seem to be the result of repetition, intensity, or recency, a more careful study of the preceding and associated states of mind will frequently show that the coming of certain images was prepared for by several experiences or by purposes that one was seeking to realize. Often the image that seems to be aroused by a word is really not so much suggested by the word itself as by preceding words and the accompanying thought. Notice the image suggested by the word in italics in the following sentence. "By the side of the road, in a swampy place among the grass and surrounded by other flowers, were beautiful *flags*." Now notice the image suggested by the word in italics in this sentence: "As they approached the town the sound of a brass band and of firecrackers came to their ears, and soon they caught sight of *flags* waving in the breeze."

Not only do the laws of habit determine what mental images shall be brought into the mind but they have a very great influence upon the way in which images are combined to form a new picture. This is illustrated by the following observation:

Whenever I read a storybook I prefer few or no pictures in it, as it seems more real to me to image the characters and places. Almost always they are ones with which I am acquainted, but they weave themselves into the story without my realizing it at first. When anyone tells me of a certain place, a building, a room, or the like, I form a mental picture from the description. That image stays until I actually see the place. Always afterward in thinking of it my own first image comes to me before the right one.

This expresses what is generally true. We not only form our images according to laws of habit but we arrange them in accordance with scenes with which we are familiar, and our subsequent imaging is influenced by these earlier arrangements. This truth applies not only to reproductive and constructive imagination but also to creative. A novelist uses images that are familiar to him and constructs plots similar to those in books that he has read, and it is exceedingly difficult for him to make his second book entirely different from the first. In a similar way the poet and the artist create in accordance with models familiar to them; and the influence of habit is further shown in the similarity of their creations.

Associations of similarity and contrast. Sometimes mental images seem to come contrary to, rather than in accordance with, the laws of habit. For example, we see a certain person and immediately think of another person a thousand miles away whom we have never seen or thought of in connection with the first. It would seem as if the image of the second person could not have been brought to our minds by any law of habit. It will usually be found in such cases that the two persons resemble each other, and it may be said that the first suggests the second in accordance with the law of similarity. This law doubtless plays a large part in our mental life and gives great variety to our imaginative activity. If we never formed any image except as it was aroused in connection with something which preceded or accompanied the original experience, our mental representations would be largely of a reminiscent character. Whatever variety there was would be due to variety of objective experiences rather than to any variation of mental activity. If we always saw a certain man on

horseback in the same place, whenever that man was called to mind we should think of the horse and the surroundings in which they were both seen ; but if we also saw him occasionally in an automobile and at other times in a train, then there is a possibility of variety in our thought in connection with him. The image that comes will be determined by the frequency, recency, and intensity of association of that man with the horse, the automobile, or the train.

Associations of similarity, however, permit of much greater freedom and variety than in the above case. When we see this man we may think of some other man with the same make of automobile or the same sort of nose or disposition, and thus may bring into association experiences connected not only with that particular man but with many other persons, objects, places, and qualities.

If we look closely into these associations by similarity we shall find, however, that they do not represent a distinct law opposing that of contiguity, but rather a special form of the law of repetition or habit. If a man has a very distinctive nose, the rest of his face may be covered, and yet you may recognize him. This is clearly in accordance with the law of habit. Suppose another man has a similar nose, and you concentrate your attention upon that feature, excluding from notice other portions of his face. It will not be strange if the features most frequently associated with that nose come to mind, and thus the man at whom you are looking suggests an individual who has never before been associated with him in your mind. If we regard similarity as consisting of partial identity, then it is easy to see how, by concentrating attention upon one characteristic of a person or an object, we may, in accordance with the law of habit, image something similar to

the present object that has been perceived at a different time and place. Association by similarity is, therefore, in accordance with the fundamental law of habit; but it differs from the usual working of that law in that attention makes prominent a part or phase of an experience, and thus similar parts or phases of experiences remote in time and place are brought to mind. It is because of such associations by similarity that we are able to bring order out of confusion, putting together in our minds things that are similar but are objectively experienced at different times and under different circumstances. This makes classification possible and also the activities of inference and reasoning, which are always based upon similarity.

There is another variation of the law of association worth noting. When we see an exceedingly tall man, instead of thinking of another tall man we may think of one who is very short. Such associations of contrast are in reality little more than disguised forms of associations of similarity. A very tall man and a very short one are compared as to the same characteristic, — height, — and they are similar in that both vary from the usual type. Such associations play a large part in our thinking, for reasons additional to those supplied by the law of similarity. We become most distinctly aware of a given quality when it is presented to us with much variation. We realize more keenly what a thing is by contrasting it with what it is not. We can only form an idea of a large horse by contrasting it with a small one. It is partially for this reason that contrasts play such an effective part in all our thinking.

Other laws than those of habit and association. It is evident from the preceding discussion that the laws of

repetition, intensity, recency, similarity, and contrast are the principal known laws by which imaginative activity is explained. It has been claimed that no other laws are needed. This may be true, yet it seems strange that the most variable of mental operations — imagination — should be based upon the fixed laws of habit. Nor does it seem true that imaginative people are the ones with the most firmly established habits of thought, but quite the opposite. We know, however, that fixed laws give variable results, as in the case of the weather; and this may well be true of the imagination, where the conditions are even more obscure than those determining atmospheric changes.

Our tendencies to image as well as to act are not all of equal strength at birth, hence a child may quickly learn to image food when he hears certain sounds or sees certain objects or movements, but be very slow in learning to image the sound associated with a certain letter. In other words, instinctive tendencies as well as the laws of habit influence the flow of mental imagery.

The physiological condition which is closely associated with an instinctive action may also be an important influence. For example, when one is hungry, images of food are much more easily suggested to him than at other times. In a slightly weakened bodily state, dangers are imagined much more readily than when one is strong and vigorous. Fatigue or drugs may also greatly modify imagery.

All persons have the same instincts by which their images are directed but not in the same degree, hence imagination is greatly influenced by native individual differences in special lines. A series of rhythmical sounds is imaged more readily by all persons than a series of non-rhythmical sounds, but a child with a "musical ear" may

reproduce a series of musical phrases after one hearing better than will another after a dozen repetitions.

Since individuals thus differ in natural tendencies it is not strange that persons who have had the same experiences and should seemingly, according to the laws of habit, form the same images, do, as a matter of fact, show great individual differences in their imagery and in their constructive and creative imagination because of differences in intensity of the same sensations and images. Imagination works according to the same general laws in all persons, but one must know the natural tendencies and the environment, the history and the recent experiences of the individual, in order to predict what images will be brought to his mind under certain circumstances. With some persons this may be comparatively easy, while with others we cannot tell even after a long acquaintance just what they will do or think when certain things happen.

In the case of such persons, especially those who are inventive or creative in scientific or artistic lines, images and ideas seem to generate spontaneously. Even in our own minds images appear without our being able to discover their progenitors or associates. Careful study, however, of both dream and waking imagery shows that, in general, the probable origin of such ideas may be discovered by sufficient study of the conditions and by probing into the past experiences of the individual. The seemingly original ideas of each person accord with his usual modes of thinking, whether it be in scientific, musical, artistic, or practical lines.

Besides the laws already mentioned there are two others that must be recognized as general. The flow of imagery is influenced not only by the images that have been and

are present in consciousness but also in a special degree by purpose or intention. The kind of imaginative activity produced by the sight of triangles depends upon whether we are expecting to construct a design of such figures or to demonstrate a proposition in geometry.

The other general law is a tendency, conscious and unconscious, to image what is agreeable or pleasant. In certain moods an opposite inclination may be observed, and sometimes we purposely hold in mind images that are disagreeable; but in the main, if a person is in good health, images associated with agreeable feelings appear more frequently and remain longer in consciousness than those with unpleasant associations. There are, perhaps, a few healthy pessimists, but they do not represent the generality of mankind. Usually only persons who are not well or those who have had very unpleasant experiences dwell long upon images suggestive of past and future unhappiness.

Generic and individual images. The laws of habit and of economy of energy both tend to limit the variety of images that one forms. In accordance with the laws of habit one who has seen many kinds of horses will not think of all of them but of the kind he has seen most often, most recently, or with which he has the most intense association. He might think of several kinds, one after another, in accordance with these laws, but it would be a waste of time and would probably interfere with his mental operations more than it would help, in most cases.

In ordinary conversation or reading, a multiplicity of images for each object named would be a hindrance. Many persons, perhaps unconsciously, select one image

to represent the class of objects indicated by a word. For instance, "horse" always calls up in the mind of one girl the image of a black driving horse, and this serves to give reality to the thought, although she may realize clearly that the horse under discussion is entirely different from the one imaged.

The following observation of a normal student is typical:

> I find that when words like "dog," "cat," "desk," "pencil," "school," and the like are mentioned I immediately image the one with which I am most familiar, then generally, if I let my mind go, I think of some less familiar and usually recall incidents connected with them.

There are two principal ways in which such typical images are formed and used, and by the laws of association such standard images play an important part in mental operations. In the minds of some the image most used is that of an individual specimen, while in other cases no particular individual is represented but there is a more or less generalized image involving common characteristics of the class. To one person "tree" always calls up the image of a particular elm tree growing in front of her house, while to another it brings only the image of the general form of a tree with trunk and branches. There is considerable variation in the way in which these two types of images are used. Generally, however, people are fairly constant in their typical modes of thinking. If, when a tree is mentioned, it is described as an oak tree just coming into leaf, the person with a generic image of a tree modifies it slightly into the characteristic form of an oak but does not form a detailed picture of any special one, while the person who usually forms an image of an

individual tree of the kind of tree described promptly substitutes a fairly definite image and in some instances will think of a particular specimen. It seems likely that the person who makes use of the generic image will be able to think more rapidly and freely than the one who deals with special images, but that the latter will have a greater feeling of reality in connection with his images.

EXERCISES

1. The effect of common influences upon a group of persons may be indicated by asking a company of people to write the following names: (1) a part of speech, (2) a flower, (3) an animal, (4) a noted character in history. In a group of twenty or more persons it will be found that 75 per cent of them write one of two or three names.

2. A group of people may be asked to solve mentally the following problem: "A man bought twenty horses at $100 each and forty cows at $25 each. How much did they cost?" Great individual differences will be found as to the exact character and arrangement of the images formed and modes of procedure followed by each person in solving the problem. If these do not appear at once such questions as the following will bring them out: Did you image the animals? What was the color? How were they grouped? Did you image the numbers as figures or as auditory or visual words? Were the numbers represented as seen on paper or on the board and how were they arranged?

3. A list of words such as "house," "captain," "tree," "school," may be given, and each individual may describe the images they bring to his mind and try to explain by the laws governing mental imagery just why those images rather than others came.

4. Discuss the probable origin of various so-called original or spontaneous ideas of sleeping or waking moments.

5. Illustrate the fact that some persons use a certain kind of imagery much more than any other.

6. Discuss the relative advantages of specific, or individual, as compared with generic, or class, images.

7. Individual comments on the following observations will probably prove interesting and instructive.

When you asked us to think of a day's outing I immediately pictured to myself everything connected with a drive from Northfield, Massachusetts, to Forest Lake in Winchester, New Hampshire. I had a very clear and distinct visual image of the way the campus of the Northfield Seminary looked that morning, of the horse and carriage, of the road, of Winchester, of the lake, and of the girls with whom I went. I could picture our lunch and could tell exactly what kind of sandwiches, cake, cookies, pickles, etc. we had. When you told us to write I began to think of words to describe my mental picture. Before that I had no thought of the words.

Before I came here to school I had imagined how my room would look and I was somewhat disappointed, as I had pictured a single room and I found I was to have a double one. This year I knew which room I was to have, and I had the arrangement of furniture and pictures all visualized nearly as I afterward arranged them.

Association plays an important part in my images of past events. For instance, when I thought of our drive to Forest Lake and of the girls with whom I went, I thought of a party I attended with those same girls, then of a walk I took with one of them, then of her roommate and of Smith College. The thought of Smith College brought up the thought of our head waitress who attended Wellesley College, and so on through a long list of events.

If reading a story, I picture the characters, place, and time. When listening to a description I have a visual image of the place being described. Usually it is connected with something similar that I have seen.

The visual image of a beautiful landscape or sunset stays in my mind sometimes for years.

I cannot so easily call up auditory images. I have heard and enjoyed beautiful music many times, but I cannot call up a very distinct auditory image of any of it.

All through the years I have been going to school I find that a great deal of my learning has come through the power of imagination. In counting from one to one hundred I have a definite arrangement of the numbers. They appear to start and go in a line upwards

from one to ten, then they shoot off and go crosswise by tens up to one hundred. I have had this image of counting ever since I can remember and was surprised to find that other people had different arrangements.

Regarding the days of the week I have a visual image of the abbreviations of the names following one right after the other, starting with Mon. If a day is mentioned, I can immediately see it in a certain place. I also have a definite arrangement in my mind of the months of the year and of the hours in the day and night.

In studying history and especially geography I always imagine the location of every place that is mentioned and do not feel satisfied to go on reading until I have found a location on the map in my mind.

I find that since we have been studying Europe I have a mental picture of the map of that continent that is hanging on the wall in Miss A.'s room, and every time anything is mentioned concerning Europe my mind immediately travels to that particular map.

Whenever the church bell rings I have an image of the church steeple as the source of the sound, and when the fire alarm rings I immediately see a picture of the fire station.

CHAPTER V

IMAGINATION AND MEMORY

Imaging and locating experiences. When asked to observe closely their memory processes most people say that images play an important part, and many of them think that it would be impossible to remember without imaging objects and events, or at least the words naming and describing them. They are only partly right. A class was shown a dozen objects in a box and later asked to write a description of them. Most of them reported that they held in mind a visual image of how the objects in the box looked and wrote the description from that. When asked a few days later to write again what they had seen in the box, most of them still imaged the appearance of the objects in the box, while some imaged the words that they had written previously, and others remembered in various ways without vivid and detailed images.

Many persons believe that memory is made possible and accurate by the power to image vividly, and in instances like the following this is perhaps true. One normal student says:

> In language work we were required to write a paper on our observation lesson. I noticed that I pictured the room, the work on the board, the pupils, and the conversation very vividly. With these images before me I was able to write about the lesson. In the geography class we took up sun work. In order to get the location of the sun, I pictured it as I had seen it at different times in the year.

Another student says:

Quotations that I learned in grammar school I can see now in my mind, with the exact location on the page, the length, and, to a great extent, the punctuation. This is a great help to memory I have found, especially in writing a quotation.

Doubtless the majority of people are greatly aided in memory by vivid images, and a few can depend upon them almost as they would upon fresh perceptions; but it is probable that in most cases images do not contribute greatly to accuracy of memory, although they do make what is remembered more vivid and interesting. In the box experiment previously mentioned there was a pen, a spoon, and a knife, but no pencil or fork. Many persons evidently had the image of a pencil and of a fork suggested to them by the other objects. A few days later, when questioned regarding the contents of the box, several of them recalled an image of the pencil and of the fork that they had formed when looking at the other objects, and in some instances were sure that they had seen there a pencil of a certain color and a fork with a certain number of tines.

It is evident from such cases as this that a tendency to vivid imagery may lead as readily to false as to true memory. The essential element in memory is not that objects and events shall be vividly imaged, but that they shall be properly located with relation to each other and in relation to those associated with them at a particular time. Vividness of imagery may be of little help in accuracy of location, but some imagery is often necessary in order to get the right associations in memory. With many persons distinct images of the space relations of objects are of great help.

People who form vivid images freely in response to a suggestion may easily be led into mistaken memories. For instance, one sees or hears a person make certain movements, forms vivid images of what the person is probably doing, and may later, in all good faith, report something entirely false regarding what occurred. In order that vividness of imagery may not subject one to error there should be a frequent comparison of images with fresh perceptions, and care exercised that images are accurate as well as vivid. The following is a typical instance of the way in which memory may be falsified by the imagination:

> Early this morning I had to write on creative imagination. I imagined it was done and how it looked, and if I had not heard the bell I should have gone to sleep again without writing my paper, because I thought I had written it.

Constructive imagination and memory. The essential truths regarding the use of constructive imagination and memory are indicated by the following quotation:

> In reading or studying, just so long as I can construct an image for each word, I can understand and reproduce what I read, but as soon as the subject matter becomes so complex or so foreign to all my former experiences that I can no longer picture it to myself, I cannot remember a word of what I have read either once or a number of times.

Most students are greatly helped by using their constructive imagination not only in studying such subjects as history and geography but also in memorizing poetry and other literary selections. By means of the images that they form they recall the words much more quickly.

Students of another type, instead of imaging that for

which the words stand, first image the words themselves and then perhaps form some images corresponding to their meaning.

Another method less common, except in the case of mature students, is that of forming only a few distinct images of suggestive words, or of the most significant elements of a situation, in getting the meaning of what is studied.

Vividness in the use of constructive imagination in reading and studying renders the subject matter much more interesting and impressive, but it does not necessarily help in accuracy of reproduction. To many people reading without vividly constructing would be like going through the motions of eating without experiencing any taste sensation. It is doubtless true, however, that very few people form images exactly in accordance with descriptions. They image in detail, according to their own pleasure or habit, what is mentioned or described only in general terms. These images may vary greatly from those in the mind of the writer or speaker and from the reality. This is especially true of images of persons. Many people form very distinct images of persons of whom they hear, which are unwarranted by any description which has been given. One young lady found it almost impossible to enjoy a moving-picture dramatization of "Little Lord Fauntleroy" because the mother of Cedric was so different in features and complexion from what she had imagined. Many people who seem to have very unreliable memories are subject to errors not so much because they cannot reproduce what they have heard as because they construct images varying materially from those naturally suggested by the words. To this inaccuracy of the

constructive imagination rather than to lack of memory may be ascribed many of the mistakes in reproducing what has been told.

Conflict of memory and creative imagination. It is not only because constructive imagination is inaccurate but because there is a strong tendency to the use of creative imagination that errors occur in repeating what one has been told or has read. There is a decided inclination to image that which is agreeable to us. Hence in listening or reading one may make little effort to construct in accordance with the words used, but additional images are brought to mind, and these are combined in agreeable or desired ways with those naturally suggested by the words heard or seen. Afterward, in attempting to repeat the description or story, these products of creative imagination are accurately reproduced, but the exact truth is not told.

This tendency of creative imagination to prevent accuracy of memory is not confined to what one has read or heard but applies also to one's memory of his own experiences. A man who frequently told an incident of his own boyhood to Sunday-school children, in order to give point to some moral lesson, became conscious after a while of the fact that he was not telling the story as he had formerly told it. The desire to make certain truths prominent had led him to modify unconsciously his images of what had really occurred in his boyhood.

Very few people can report correctly any experience that is at all exciting. They recall only a few vivid images of what actually occurred. These images suggest what, under ordinary circumstances, would be associated with them, and creative imagination quickly reproduces a whole scene. Desire and purpose so influence creative

imagination that one's account of his own adventures is likely to be much more favorable to him than an accurate description would be.

So frequently is creative imagination opposed to accuracy of memory that unreliability in memory is often ascribed to a too active imagination, and imagination is often supposed to be necessarily concerned with what is not true. This latter supposition is of course entirely unwarranted, and the possession of a vivid imagination does not necessarily render memory inaccurate. One may picture as vividly as he pleases without being led into error, providing that he will at the same time carefully distinguish between what actually occurred or was reported to him and what he pictures as the possible, probable, or desired circumstances.

Special varieties of images as aids to memory. Some persons in order to remember a name need to hear it pronounced repeatedly, others must see it distinctly written or printed, and still others find it necessary to speak or write it themselves. Such facts as these have led to much discussion with regard to individual types of images and the use of imagery in memorizing. Some individuals remember best what they see, others what they hear, and others those things in which their own movements are involved.

Where such tendencies are very pronounced it would seem that various methods of teaching and studying would be most effective according as they harmonized with the type of imagery of individual students. The question of which method to use seems to be most prominent in connection with memorizing lists of names and in learning to spell. Visual methods of teaching are now very

common, and it is claimed that on this account those who have a strong tendency to the use of auditory or motor images are placed at a disadvantage. This is probably true, but a long series of experiments have not yet evolved accurate means of determining just how prominent the tendency is in any particular individual to use a certain type of imagery.

The matter is much more complicated than at first seems to be the case. If you test a group of individuals by showing them a list of words, then by speaking another list of words, you cannot be at all sure that they will remember the words in corresponding images. If a person has a strong tendency to auditory imagery, when he sees a word he will form an image of how it would sound, and when he recalls it the sound rather than the visual appearance comes to his mind. In a similar way a person with the visual type of imagery will picture the appearance of words that he hears and will then remember those visual images rather than his auditory impressions. The person with the motor type of imagery makes movements and images of movements when he receives auditory or visual impressions, which aid him in his future recollections. It is found that the average number of words reproduced by a class is usually increased by having them seen, heard, and spoken or written, but this does not necessarily mean that each individual can remember better that which appeals to several senses than what is repeatedly impressed upon one. Such a procedure gives persons of all types of imagery a chance to learn through the kind of impressions they prefer. Hence there are fewer failures. The fact remains, however, that persons who have a strong tendency to one type of imagery are

frequently confused more than they are aided by the presentation of either single words or selections in several ways. The visualizer may learn more quickly by reading a selection twice than by reading it once and hearing it once and reading aloud or writing it once, and similar facts hold true for those of the auditory type.

EXERCISES

1. Individual reports should be given as to the part that images play, (1) in remembering what one has experienced, (2) in learning and recalling words, figures, or diagrams.

2. Reports should also be given as to the value of constructive imagination in remembering what is read or heard.

3. To what extent does the tendency to create pictures that are agreeable to oneself interfere with accurate memory?

4. Report upon the kind of sensations and images that are most effective for you in memorizing. Do you get most help from repeatedly seeing, hearing, or speaking words or from forming the corresponding images?

CHAPTER VI

FEELING AND IMAGINATION

Images and sensory feelings. The following is a typical instance of feeling aroused by mental images:

When a sail that I took last summer was mentioned, I immediately felt the motion of the boat and had a mental picture of the view of the harbor. When I think of the beautiful residence of Mrs. F., especially on a warm sultry day, I form a mental picture of the pure white marble colonial mansion, with its splendid columns, and the great smooth lawn in front that extends to a high stone wall against which I can hear the dashing of the waves, and I feel refreshed and in a very quiet, peaceful mood.

Another says: "When I read an interesting book, images are formed not only of characters and scenes but of delicious things to eat and of lovely odors, such as the scent of roses."

To some persons the memory of a burn seems to be actually painful, and the taste image of certain substances may give almost as intense feelings as did the original taste sensation. Many people have the power to see again with the eye of memory beautiful scenes which they visited perhaps years ago. A few persons are able to enjoy repeatedly in retrospect a musical treat by imaging the music that they have heard. To reëxperience the feelings accompanying movements by imaging the movements is not at all unusual.

In such instances it is evident that the images not only produce feelings similar to those experienced originally but that the accompanying mood or emotional state is reproduced to a greater or less extent. Vividness of imagery doubtless has a much more important effect upon the feelings than it has upon the efficiency of intellectual operations.

There seem to be exceptions to the general rule that images produce the same sort of feeling as accompanied the original sensations. These seeming exceptions are usually the result of contrast. Reminiscences of hardships endured may give considerable pleasure in the present, but this is the case only when the outcome of those hardships was a happy one or when the present condition is pleasantly contrasted with the former. The memory of former joys is pleasurable unless present unhappiness is contrasted with them and takes the dominant place in consciousness.

Constructive imagination and emotional states. The emotional effects produced by speakers and writers upon their audiences and readers depend very largely upon their ability to arouse images associated with various feelings of a certain type and so arranged and combined as to produce a distinct and unified effect. Hatred for a person or a party is aroused and intensified by words which suggest unpleasant images and evil practices in connection with that person or party, such as "schemes of the gang"; while love, admiration, and enthusiasm for another person, party, or country are awakened and developed by words suggesting mental pictures that are agreeable and inspiring, such as "noble deeds of loyal patriots."

A skillful appeal to the imagination may produce a much more distinct and intense feeling than would personal acquaintance with the person and the incidents. Falstaff is a delightfully enjoyable character to the imagination, but in actual experience such an individual would probably be disgusting. Although his grossness is suggested by Shakespeare, yet his amusing qualities are made so much more prominent that we enjoy picturing his actions and words. Little Nell arouses the deepest feelings of compassion, but many of those who are most stirred by her sorrows as portrayed by the master of fiction, if acquainted with such a girl in daily life, where the pathetic is mingled with the commonplace and even the disagreeable, would fail to have their emotions of pity aroused. It is because great writers skillfully select and combine images so as to produce a complex, unified, emotional state of a certain kind in their readers that literature is often more interesting and enjoyable than real life, and imaginary characters are more influential as ideals than real persons whose attractiveness is lessened by prosy details.

Mood and creative imagination. There is a reverse side to the phenomena of images and of emotional states which is especially prominent in creative imagination. Instead of the feelings being aroused by the images that are suggested, we have the phenomenon of feelings generating images of experiences of a corresponding type. A person who has a fit of the blues due to fatigue or other physiological disturbances may have suggested to his mind images of experiences associated with unpleasant feeling, and he may form much darker pictures of his present situation and of the future than the facts justify.

Present feeling seems to act as a selective agent in bringing into consciousness images associated with unpleasant experiences or images that contrast unpleasantly with what is now being experienced, and to so direct the combination of these images as to greatly increase the unpleasant feelings and the corresponding depression. The imagination thus intensifies and justifies the emotional state, and many people think that the images with which the mind has been occupied are the real cause of the mood. In a large proportion of cases, however, a depression of the vital functions and the consequent disagreeable feelings were the chief cause of the unpleasing images occupying the mind and the consequent mental depression.

Sometimes, however, the cause is primarily mental, although lowered vitality is a contributing factor. Sorrow, failure, or disappointment coming when one is fatigued is likely to call to mind memories of similar experiences and cause the creative imagination to build up a gloomy picture of the future, while in vigorous health such an unpleasant experience would perhaps suggest by contrast former successes and pleasures and lead to picturing a brighter future shortly to be enjoyed.

Instincts and imagination. Instinctive tendencies, of which we may or may not be aware, play a very prominent part in stimulating and directing the imagination. The hungry person finds images concerned with food and eating persistently coming into mind, and the longer he remains hungry the more will such images predominate in his mental processes. When his needs have been fully satisfied such images disappear, and it may be difficult to voluntarily bring them into consciousness.

An individual in whom fear is aroused promptly develops an exceedingly active imagination concerning possible sources of danger. This instinct may almost completely control one when he is alone and in darkness. The faintest sights and sounds arouse images of objects, animals, forces of nature, diseases, or persons that are feared, and these images are combined into what seems to be a real situation of danger. The actual sensations experienced may have no connection with anything that is dangerous, and if the instinctive fear were not aroused would pass either without notice or with the usual commonplace interpretation. But when fear is present they produce images that recall others associated with fear, and soon there is in the mind of the individual a mental picture of a situation that is decidedly precarious. What is true of the instincts of hunger and fear is true of all the other instincts, as is shown most clearly in literature. Evidently love, religion, and ambition, or the desire for approval, are among the strongest stimuli to the creative imagination, since they are most frequently involved in artistic and literary productions.

Desire and imagination. Without desire there is little constructive or creative imagination. Images may be brought to mind in accordance with the laws of association, but there will be little activity in the way of forming them into complete pictures, unless by so doing some desired end is likely to be gained. The most vivid description of how a game may be played or some object constructed will not result in a unified picture unless there is some desire to understand or to do which directs the combination of images. Still less does the creative imagination become active without the stimulus of mood or desire. Desire is not only a stimulus to the imagination

but it is a very large factor in determining what images shall be brought to mind and how they shall be combined. The girl who wishes to go to a party frequently finds it almost impossible to keep her thoughts away from things connected with that festivity. If there are difficulties in the way of her going, she imagines a thousand possible ways of overcoming them, and it is astonishing how much ingenuity she may show in getting her heart's desire, even though ordinarily she may not seem to have much initiative or originality. If there is no difficulty about going, but the experience is a new one, then her mind may be filled with images of flowers, lights, music, delicious refreshments, the charming people she may meet, and the interesting things that may happen. She may picture so vividly imaginary scenes as to become entirely unconscious of her present surroundings.

The surest way of stimulating imagination is to excite desire of some kind. The person with many unsatisfied longings is always the possessor of an active imagination, unless he has given up all hope of attainment.

On the other hand and yet in accordance with the same principle of unfulfilled activity, what is feared or abhorred is a strong stimulus to the imaginative activity. In both sleeping and waking life images of fear and horror come unbidden to some persons and dominate their creative imagination.

EXERCISES

1. To what extent can you get the same feelings from mental images that you get from sensations?

2. What relation is there between the vividness of the images that arise in connection with certain emotions and the strength of the emotion you experience? Illustrate.

3. Give examples of the images and emotions aroused in your mind by certain pieces of literature.

4. Study Poe's analysis of the construction of "The Raven" and see how far the nature and vividness of the images aroused produce the intended emotional effect. Analyze some other selection in a similar way.

5. Illustrate the fact that emotions stimulate the creative imagination and increase its vividness.

6. Illustrate the influence of desire and also of dread upon the imagination.

CHAPTER VII

IMAGINATION AND DREAMING

Dream imagery. Images do not differ greatly in kind and in the ways in which they are brought into existence, whether they appear in daydreams, ordinary night dreams, or in dreams that occur in sickness, under the influence of drugs, or in the hypnotic state. Dreams may be more vivid under some circumstances than under others, but if they are dominantly visual in one state they are usually so in all, and the same is true as regards other kinds of imagery. The chief difference between a night dream and a daydream is that in the latter case consciousness is more complete. One is, to some extent, aware of his surroundings and knows that his images are mental. In night dreams the senses are only slightly active and the dream images fully occupy consciousness so that all seem real.

In no form of dream can anything be represented the elements of which one has not experienced sensorially, and in all sorts of dreams the coming and arrangement of images is largely independent of will, although in daydreams there may be a little conscious guidance of the imaginative activity.

A person born blind can no more dream of visual experiences than he can image them in his waking state. A study of the dreams of the blind reveals the fact that those who have been blind from an early age dream in

terms of touch and motion or of sound. Very few of those who were less than three years old when sight was lost have any visual images in their dreams. Nearly all of those who were over seven when they became blind have visual images in their dreams and also in their ordinary waking life. Of those between three and seven some dream in visual terms and some do not.

The dreams of persons who are both blind and deaf are almost wholly in terms of touch and motion. They not infrequently talk in their sleep with their fingers as many normal people do with their vocal organs. Dream images are generally more vivid than waking images, or at least they seem so. This is probably due to the fact that there are few or no sensations to contrast with them.

Sensations and dreams. Although the senses are to a considerable extent closed in sleep, they play some part in dream imagery, and in many instances the dream image is modified or suggested by sensations. When asleep, if the eyes are fatigued or painful, dreams may result, while the repeated flashing of light that does not waken the sleeper may produce the same effect. Probably the most common sources of dream imagery are bodily sensations coming from the internal organs and kinæsthetic and touch sensations caused by the position in which one is lying. Touch sensations, especially those of temperature, very often excite dream images. It is not at all unusual for one whose feet have become uncovered to dream of walking barefoot in the snow.

These facts regarding dream images as produced by sensations have been obtained not only by observing what sensations were being experienced at the moment of waking but by many careful experiments in which

sleeping individuals were stimulated sensorially and then awakened and asked to relate their dreams.

So nearly alike are dream images and sensations that it is sometimes impossible for one to tell whether he is remembering a dream or a real experience. If the dream experience has been concerned with other places, persons, and things than those which appear to him when he awakes, he knows at once that he has been dreaming. Otherwise he may be in doubt. If you have dreamed that some person staying in the house came into your room, did certain things, and then went out again, it may be utterly impossible for you to tell whether the person was in the room or not. You can determine the truth of the matter only by questioning the person or someone else who might know, or by observing whether any object in the room has been displaced in accordance with your dream.

Recent experiences and dreams. Aside from what may be called "stock dreams," which occur again and again, a close study of the subject reveals the fact that nearly all dreams are connected in some way with recent experience. This is most readily noted in the case of unusual and exciting occurrences. The person who has been in a fire or a train wreck frequently suffers more in his dreams than he did in his actual experience. The painful incidents stand out more clearly than in the original, where the tragic was mingled with the commonplace.

In the case of events less exciting the dreams are much less like memories, and contradictory experiences are often associated with the same person. The death of a friend or relative is a frequent cause of dreams, but usually the person is represented as alive and frequently the circumstances are very pleasant.

New experiences, even though not very exciting, are a common source of dreams, but very often the persons, objects, and events concerned are so modified and confused with images from experiences long past that one may not at first realize that recent events occasioned the dream. Fatigue plays a considerable part in dream imagery, and often the whole dream is somewhat in the nature of an after-image. One may continue in his dreams the physical or mental activity in which he was engaged just before going to sleep. The same thing is done or attempted over and over again, usually under difficulties and seemingly with little success. Sometimes, however, the condition is reversed, perhaps more frequently when there is partial recovery from fatigue, and a problem which could not be solved when awake is solved in a dream. A number of instances have been reported of correct dream solutions of mathematical and other problems which had baffled the waking consciousness. In a few instances the solution has been found written on paper, although the individual had no recollection of the dream success. More often, however, seemingly satisfactory solutions of difficult problems are found to be quite otherwise when one becomes fully awake. What seems wonderfully clear and convincing, when dreaming and at the moment of waking, becomes less and less definite and reasonable as one considers it.

Wishes and dreams. Some psychologists have gone so far as to say that dreams are always more or less directly expressive of wishes or desires. This is probably an overemphasis upon one of several factors involved in stimulating and directing dream experiences. Wishes in the broad sense of the term correspond to activities that have been

initiated and have not ceased or have not reached a culmination. Their effect is therefore not unlike that of occupations that have been carried on just before going to sleep and which continue in the same or in a modified form in dreams. Suppressed desires play a large part in dream experiences, but they are frequently so disguised that only an expert student of dreams is able to detect them and demonstrate their real relation.

In nervous disorders, especially those due to suppression of desires or of natural impulses, a study of the dreams of the patient will frequently give a clue to the original sources of the difficulty. Not infrequently impulses or desires that were suppressed and covered up, perhaps in early childhood, have remained for many years a disturbing element in the mental processes. Sometimes in such cases the subject himself has forgotten the original incident until it is recalled to him by close questioning, either in the normal or in the hypnotic state. Dream experiences are frequently used successfully as a basis for such questioning and have thus come to play a large part in the treatment of mental disorders and associated physical disabilities.

Desire and abhorrence frequently combine in the production of images of a certain type, as when a soldier who desires to be brave but fears that he will prove a coward dreams of being disgraced by cowardly acts, or when one dreams of yielding to temptation of any kind.

EXERCISES

1. Report upon dreams that seem farthest removed from any actual event, and analyze the images to see if their elements are the result of sensory experiences.

2. Describe dreams that were difficult to distinguish from actual experiences.

3. Give examples in which sensations experienced at the time were clearly the cause of dreams.

4. Analyze dreams to find how far they reflect recent experiences.

5. Show the part that desire and aversion play in some of your dreams.

6. In what respects does your dream imaging correspond to your working imagination when you are not striving to accomplish a definite thing?

7. In what respect do your dreams when asleep correspond to your daydreams, or waking imagination?

8. Compare your nonvoluntary, waking imagination, or daydreams, with your dream experiences, noting likeness and difference.

CHAPTER VIII

REASONING AND IMAGINATION

Similarity and purpose in reasoning. All reasoning is based on similarity and leads to a conclusion. The chief difference between daydreaming and reasoning is that in reasoning associations of similarity are more prominent, while symbols and general truths partly take the place of images. Purpose and selective attention also hold a more prominent place than in daydreaming. These distinguishing qualities of reasoning make it inevitable that there shall be a more complete analysis and careful noting of exact points of resemblance. The images characteristic of dreaming are also more or less characteristic of reasoning; but in reasoning, what the image stands for, rather than the image itself, is of most importance.

Most of the students who were asked whether they believed in capital punishment or not, and their reasons, reported that in thinking about the matter they formed concrete images.

When the words "capital punishment" came to my ears I immediately saw a condemned man with handcuffs on, standing in a court room with a hopeless look on his face.

When asked my opinion I began to wonder how this law affected the rest of the world and came to my conclusion.

When asked my reasons I could see one bad man in a street filled with good people, and wondered why he should be allowed to return to them after he had committed crime demanding capital punishment.

I saw the words "capital punishment," then I saw a man killing another, and the image of an electric chair. Then I saw the picture of a man, haggard and hatless, skulking along the side of a building. Then I saw a man, who had been imprisoned for life, killing his guard.

First I saw an image of a man with a black robe around him and a rope attached to his neck, with several men standing around him. Then I saw the same man with his relatives before he entered the death room, everyone crying but the intended victim.

A few had only symbol or verbal images, as in the following case:

At first I thought of the word itself, and thought it came from *caput*, thus meaning "beheading" or "life taking." When asked for my belief I at first thought "yes," because of a specific remembrance of the trouble in imprisonment in the Thaw case. Then I thought of the frequent unfairness and injustice. Also I thought that it (imprisonment) is really a worse punishment than taking life, if just; and if unjust, the man has a chance. I thought that a man might do something very wrong and yet be of use to society in some ways.

The kind of imagery was mainly verbal and very slightly auditory, with practically no visual imagery except the visual image of the word.

In another experiment students were asked whether a hunter who passed entirely around a tree in which there was a squirrel, which moved so as to keep hidden from him all the time, really went around the squirrel. All reported concrete images. In this case images of space relations are a necessary part of the reasoning process, but there is loss rather than gain in imaging in detail the

exact appearance of the man, the species of the tree, and the squirrel, although some do so.

It is found that in some instances reasoning is not correct because of the lack of definite images. For example, a number of children were given this problem: "If you were to walk directly west from here three miles, and then a carriage were to come along and you were to get in and ride east two miles, how far would you be from this place?" A large proportion of the answers were either "five miles" or "six miles." Evidently the children did not in this case form definite images of space relations, but followed their habitual method of dealing with problems which sound very much like this one, by either adding or multiplying. A concrete image of the person as moving in one direction and then along the same course in the opposite direction does lead to the correct conclusion. Such concrete imagery is not, however, absolutely necessary to the solution of this problem. One may think of east and west as opposites of each other without concretely representing movements in space. Evidently an image of the features or clothes of the person walking would be of no value.

In solving such a problem as the following, many normal-school and college students fail either because they do not image concretely or do not analyze and observe the essential elements: "If it is worth sixty cents a cord to cut cordwood into two pieces, what will it be worth to cut it into three pieces?"

Symbols and exact reasoning. In exact reasoning, of which mathematics, especially algebra, may serve as a type, the images used must be almost wholly symbols representing relations rather than concrete images of things. In

geometry images of the lines, angles, and figures play a large part in reasoning. One who has good control of visual imagery may work out propositions quite successfully without any apparatus for making actual lines. In all geometrical reasoning the lines and figures are partly concrete and partly symbolical. A concrete triangle is represented on paper or in the mind, but unless one thinks of that triangle as being merely suggestive of any triangle of the same type, whatever the length of its sides, his reasoning is likely to lead to false conclusions.

When the lines in a figure are designated by letters and their relations are expressed in algebraical form, thinking may become wholly symbolical. To many persons such thinking is vague and uncertain unless they also image the lines symbolized. Without thus picturing lines of various lengths and inclinations combined to form the type of figure being considered, they feel no assurance of the correctness of their conclusions. In order to reason with any degree of clearness regarding the proposition they must do a good deal of concrete imaging. To advanced mathematicians, who have developed to a high degree the power of abstract thinking, concrete imaging seems childish and a waste of time.

Many scientific persons take satisfaction in using algebraical symbols instead of concrete instances, even when their reasoning is not concerned with mathematical quantities. For example, in psychology, instead of saying, "The odor of an orange recalls to mind images of its form, color, and taste," they say, "Sensation A brings into consciousness images B, C, and D that have been associated with it." Such a mode of thinking lacks in concrete representation of actual experiences, but gains in

brevity and generality. In the instance quoted, the exact points necessary for reaching a conclusion regarding the laws of association are represented by the symbols, without loss of time and without the confusion occasioned by representing unessential details and variations that do not change the truth involved.

To many people, however, such abstract or symbolic reasoning is very unsatisfactory. They prefer to represent a concrete experience, and with that as a basis reach the conclusion that certain results will follow, not only in the instance represented but in all other instances of the same type. Some people can reason nearly as rapidly in this way as others can by the use of symbols only, while other persons must spend considerable time in representing not only the one concrete instance but many others before they can reach a conclusion.

It is claimed by some persons that a representation even of symbols is not necessary, and there has been considerable discussion whether such "imageless thought" is possible or not. In cases where an individual is not distinctly conscious of either concrete or symbol images it is probable that some vaguely represented or actual movements of vocal organs, hand, eye, etc., play an important part in the mental operations. When the mind is dealing with familiar meanings in the usual way, there is less need for images of any kind. It may, therefore, be true that many people do some thinking without images of sufficient distinctness to be noticeable, and that some do nearly all their thinking in that way.

The definitions given by children at different ages show that the older they become the less surely are concrete experiences associated with words. For example, the primary

child says, when he is asked to tell what the following words mean: *car* — "goes on a track"; *trouble* — "when you break a glass"; *pretty* — "got a pretty dress"; *school* — "where you learn"; *study* — "writing"; *bee* — "bumble-bee"; while an older pupil gives more abstract definitions, such as these: *bee* — "a small insect which is able to change the nectar of flowers into honey"; *pretty* — "something that is beautiful"; *trouble* — "in danger." It is found also in testing the definitions of older pupils that the more familiar the word is the less are concrete experiences used in defining it. It seems probable, then, that in certain stages of development of the process of thinking and reasoning in any line, images are necessary, but that later the concrete images may be eliminated, and that even images of symbols may, in the case of some persons, have ultimately little place in thought processes. With others, however, vivid images, either of some typical experience or of symbols used in representing that experience, are necessary to clear thinking, and with use such images become more, rather than less, vivid. In a large proportion of cases the images in ordinary thinking are vague and fleeting, but when there is hesitation or doubt they are made more vivid and perhaps also more concrete.

Images, judgment, and decision. In the case of most persons concrete imagery has a great influence upon judgment and choice. This fact is well recognized by skilled orators, politicians, and advertisers. The political leader who succeeded in getting voters to associate with the name of his party the image of a workman with a full dinner pail won the election. A vivid picture of concrete instances of undesirable happenings when a certain tariff

policy was enforced, in contrast with instances of happiness and prosperity when the country was living under another tariff law, has more effect upon the judgment of men with regard to tariff policies and upon their choice of party than the most logical abstract demonstrations of the fundamental principles of political economy.

The convincing speaker is the one who calls up in the minds of his auditors a concrete picture which is not only vivid but which arouses distinct feelings of a certain kind and then associates that picture with the person, party, or principle that he wishes them to favor or condemn. Vividness of representation sways the judgment and directs the will of the great majority of people to a far greater extent than does accurate classification according to similarity and careful reasoning in accordance with principles of logic.

Imaging in induction and deduction. In inductive reasoning, previous concrete experiences form the basis of expectation or inference as to what is likely to happen under given circumstances. This kind of reasoning is sometimes little more than the working of the law of habit and hence does not necessarily involve much imaging. In our everyday experiences we learn to act in ways that bring the most satisfactory results, but we do not necessarily distinctly represent former occasions. We expect that food of a certain appearance will taste in a certain way, and we anticipate the touch sensations which may be gained from an object giving certain visual sensations. We know what will happen if a glass is dropped upon a stone or if a piece of wood is thrown into the water.

When, however, we attempt to formulate a general truth, such as the statement that lowering the temperature causes the moisture in the air to condense in the

form of drops of water, we must observe much more closely, note similarities of conditions, and do a good deal of imaging before we clearly perceive the basis of the general truth and are able to express it in words. After such a general truth has been formulated, and we attempt to use it in deductive reasoning, we are likely to think of it either by imaging the words or the mathematical formula by which it is expressed or by picturing some concrete instance in which its application is clearly shown, such as a pitcher of ice water with drops of moisture on its sides. In applying the truth to new situations we must observe or image the situation and see whether it belongs to the class covered by the general principle. In doing this the mind may be occupied chiefly with symbols and meanings, or there may be much representation of concrete experiences, or the typical instance from which the general truth was drawn may be pictured. For instance, the grass may be imaged as becoming wet when the sun goes down and the air becomes cooler. Highly trained thinkers are more likely in both inductive and deductive reasoning to have their minds occupied chiefly with symbols and the similarities and relations for which they stand.

There is no clear distinction in the ordinary thinking of most people between induction and deduction. A situation that seems to be similar to others that have been experienced calls forth a representation of the results that are to be expected. If there is any doubt about the matter, the situation is examined more closely and compared with images of other situations that seem to have been similar, and a conclusion is reached as to what will happen, without any distinct formulation of a general truth applicable to all situations like this one. In other words, there is

a great deal of reasoning from particular to particular in which memory, habit, and concrete imagery play the prominent parts, while consciousness of general truths which may be expressed in the form of symbols is vague and inexact.

Most people expect the reddest apple to be the best flavored, although they have never thought of the exact relation between color and taste. The housewife who has been cheated by one peddler may image the experience and refuse to trade with the next, although she has never made any definite induction as to what classes of persons are likely to be dishonest.

EXERCISES

1. Notice and report the part that images play in your own thinking and reasoning in specific cases and discuss the advantages and disadvantages of using concrete images in greater or less detail.

2. Study two such contrasting types of oratory as Burke's speeches and Talmage's sermons and note the part that imagery plays in each case and their relative effectiveness for popular appeal.

3. Reason either inductively or deductively regarding the usual relation between loss of sleep and good nature, then notice the part that concrete images play in such reasoning or report the part that imagery played in some development lesson or argument you have heard.

PART II

THE IMAGINATIVE LIFE OF CHILDREN

CHAPTER IX

FACTORS INVOLVED IN THE EARLY DEVELOPMENT OF IMAGINATION

The beginnings of imagination. The first mental images develop in a child's mind through the habitual association of sensations. When a child a few months old turns to look for the source of a sound, it is probable that if the sound is a familiar one he has some sort of image of what he will see. In a similar way the child who has brought a certain object to his mouth a number of times has an anticipatory image of the sensation he is to experience. When this anticipation is verified he may be said to recognize or perceive, and his disappointment, if the expected sensation does not come, may also be interpreted as indicating an image of what was expected. For instance, a child who often put the smooth leather of his shoe to his mouth seemed disappointed and displeased when he brought a chamois-skin bootee in contact with his lips.

The enjoyment derived from playing peek-a-boo is probably due in part to the confirmation of an anticipatory image by the expected sensation. If a child shows knowledge of an object when he is receiving no sensation from it, there is still better evidence of the existence of an image, as when a child reaches for something which he has dropped but cannot see or for something which is in its customary place yet is not in sight. If an object

has been seen only once in a certain place, the prominence and permanency of an image is still more clearly indicated. For instance, a boy a little over a year old who had seen a persimmon placed on a shelf made signs the next day indicating his desire for the fruit, although he could see only the shelf upon which it had been placed.

In the early development of imagery an interval between the sensation suggesting the presence of an object and the sensation given by the object is favorable to the formation of an image of it. When two or more sensations always occur in immediate succession there is little opportunity for forming images, and the perceptions are largely a matter of habit involving little more than the tendency to make the right motion in response to the sensation being received.

Language and images. The formation of images is greatly helped by receiving sensations which are associated with an object in the absence of that object and when all the surroundings are different from those in which it is usually perceived. Sounds, especially words, are the most effective means of calling up images of things that are not present. If a child has seen a dog and heard it bark and later, perhaps when in the house, hears it again, he is likely to show interest and doubtless has some sort of visual image of the animal and its movements. In a similar way, if a child sees a horse and pats it while someone repeatedly speaks the word "horse," he is likely whenever he hears that word to form a visual image of the horse and of the sensations he experienced in touching it. The immediate response to a word by some kind of movement associated with it, such as waving good-by or playing pat-a-cake in response to a suggestion, is not as

likely to be accompanied by images as are words suggesting objects. Words are the most effective means of freeing objects from their immediate surroundings and thus developing images that are independent of any particular place or associated object.

If it were not for words, associations of time and place would be much more limited than they are. Words bring images of objects into the mind in places where they have never been seen and after considerable intervals of time, and thus varied associations of time and place are formed. It is true that when a word is spoken the child forms an image not only of the object named but of the things and events associated with it at some particular time. But if the object has been seen under varying conditions, brought to mind in various circumstances and mentally associated with things with which there has been no experience at the same time and place, the tendency is for the image of the object to suggest less definitely particular associates. In other words, the image becomes freer and consequently does not represent such distinct memories.

Although images develop rapidly in response to words, yet their definiteness and the possibility of their being aroused by indirect means are very much increased by the child's own use of words. He must have some sort of idea or image when he speaks the name of an object that is not present and manifests a desire for it. We may say that the development of constructive imagination is indicated by the way in which the child puts words together in forming sentences. At first he uses only one or two words to suggest the thought that he has in mind, but later he uses words corresponding to the object and indicating its special appearance, where it is, what it does

or is used for, in an order which suggests a completed picture of a whole scene or event. Such a use of constructive imagination is, of course, prepared for by hearing and understanding sentences spoken by others. To understand a request such as "Go into the dining room and bring me a spoon from the table," the child must construct the scene and the movements to be made. In a similar way he begins to use his constructive imagination when he shows an interest in stories which reproduce events in which he has participated.

Tendency to animism. Nearly all children show a tendency at an early age to note the resemblances of objects to living things and to treat them as if they were alive and had the characteristics of people. The most universal manifestation of this tendency is shown in the way in which toys resembling persons and animals are used. Their general appearance suggests images of objects that move, eat, and feel; hence it is not strange that they should be treated as if they were alive. Flowers and trees often move in the wind in ways similar to those of persons or animals, and this brings to the child's mind images of the characteristics of living things which are then readily associated with the trees or flowers. Besides this, flowers, sticks, stones, etc. may resemble in appearance a face or some prominent part of the human body, such as an eye or mouth, and this is sufficient to make the child regard them as being like people.

The child who has experienced certain feelings as a result of movements of objects, and in connection with his own handling of them, learns to infer that other people under similar circumstances have the same feelings. It is only a slight extension of this tendency which causes

children to ascribe feelings like those of human beings to all sorts of things, animate and inanimate. A child may treat a stick or a stone which has displeased him in much the same way as he would a companion, or if he is of a sympathetic nature, he may, as some children do, pity the wood that is put in the fire or the pebble which must stay always in one place. This tendency to animism, so prominent in children, is a strong stimulus to the imagination and has had a large part in the development of the myths, legends, superstitions, and religions of various peoples.

Imitation and imagination. Children less than a year old usually begin to imitate sounds and movements. These more or less complete reproductions indicate and help to develop images of movements and ideas of feelings associated with various objects and acts. When imitation is spontaneous and immediate it is occasioned by sensations rather than by images, but when a child seems to reproduce voluntarily a sound or a movement, some time after it has been heard or seen, he must be guided by some sort of image, and this image doubtless becomes more definite as he tries again and again to reproduce what he has perceived.

Further development of images and constructive imagination appears in dramatic imitations, when the child reproduces not a single scene or movement but a series of events which occurred at different times and places. In such cases other objects and persons than those actually observed in the original experience may take part in the performance, and some of the acts are only partially performed or are perhaps omitted altogether. The child reproduces the experience of going to ride in a carriage

or a car, or of witnessing a fire, or of going to a circus by using furniture or playthings to represent the objects concerned, while he himself, perhaps with the aid of his companions, proceeds to supply the dramatic action by flourishing a whip, shouting to the imaginary horse, clanging a gong, or prancing like a circus pony. By such dramatic imitations the child develops clearer images and gains a considerable power of control over them, which enables him not only to reproduce incidents which he has observed but also to construct more completely those which have been described to him. It is interesting to note that in connection with all the early playful exercise of the imagination the child is controlling his movements and manipulating objects to represent imaginary things. Undoubtedly the early power of controlling images is the result of thus regulating his own movements in shifting objects which symbolize to some extent his imaginings.

Reminiscence and anticipation. At about three years of age, when a child begins to use his creative imagination, he often shows also a marked tendency to recall former experiences. He delights in relating incidents that occurred several months earlier and can frequently give many details indicating a fairly definite and accurate imagery. These reminiscences of past experiences serve as a basis for imaging those that are expected in the future. Memories of what he did last summer or last winter or at the seashore start the child to picturing what he may do and what may happen when those seasons come again or those places are once more visited. Just as in the early use of the creative imagination real objects serve as a stimulus to pretending that they are different from what they really are, so do memories of past experiences

serve as a basis for imagining future episodes similar in general character but differing in various and agreeable ways. Moreover, just as the activity of the imagination is contrasted with, and to some extent opposed by, the actual sensations given by objects, so when a child again has experiences similar to those he remembers, he modifies his anticipatory imagery of the future and limits it more closely to actual facts or to the possibilities of the case. At the same time variations in his experience furnish a stimulus to variety in his future anticipatory imaginings.

Imagination and the omnipotence of childhood. The traditional idea of omnipotence is indicated by the phrase "He spoke and it was so." There is no thought of means and effort, but the desire or the will produces that which has been conceived. When one considers for a moment it is clear that to the infant's dawning consciousness needs are supplied and wishes are gratified without personal effort. As the infant becomes hungry, food is provided; if he is pricked and cries, relief is at hand. Later a bright object is seen, and at a gesture or a word it is placed in his hands. During all his time of helplessness, the child is really omnipotent. Much of what he wishes or wills comes almost instantly and without effort on his part. In sharp contrast with this are his experiences as he begins to help himself and supply his needs and desires by his own thought and effort. He must become acquainted with the world in which he lives and conform strictly to its laws or his wishes remain ungratified. The words "dress me" do not quickly result in his being properly dressed, but a very definite series of movements must be carefully made in proper order before the desired result is obtained and he is in a condition to gratify his next

desires. Only gradually is the lesson learned that we live in a world where everything must be paid for by planning and effort suitable to the occasion. A lifetime of schooling is sometimes not sufficient to teach this lesson fully. Even when it is learned there is relief and pleasure to be found in daydreams in which we lapse again into our childhood condition, of wishes being gratified without the use of means.

Is it any wonder that the child clings to this world of personal power in which wishes bring their own fulfillment? Poets always dwell much in this world, while the most original scientists and inventors find in it possibilities which later, by regulated effort, they transform into actualities. Thus all through life there is contrast and conflict between the world of fancy in which we are omnipotent and the real world where we can succeed only by almost slavish conformity to the laws of the universe of which we are a part. Yet there are at the same time reciprocal influences by which law is brought into the world of fancy on the one hand and the present and actual changed into the future and the ideal on the other. Only by proper balance of these contrasts and relations can life be made both sane and ideal. Childhood can be understood and properly nourished into usefulness and happiness only by recognizing that man begins by being omnipotent in the world of fancy while learning the laws of the real world to which he must conform in order to become really powerful and efficient. Children are thus alternately the most idealistic and the most literal of creatures, now reveling in fancies, now oppressed by realities and their own helplessness. This divine spark of freedom and of will to be and to possess must not be smothered.

EXERCISES

1. Report the earliest evidence of expectation on the part of infants that you have noticed.

2. Report the earliest case of evidence of memory or imaging of an object not in sight which has been perceived only once or twice before.

3. Give remarks of some small child while listening to a story describing the doings of himself or others which show what mental pictures he is forming.

4. Report instances of the tendency to animism in small children.

5. Describe some of the earliest dramatic imitations that you have observed.

6. Give instances of reminiscence on the part of young children, and also of anticipatory imaging.

CHAPTER X

LATER DEVELOPMENT OF THE IMAGINATION AS AFFECTED BY AGE, CIRCUMSTANCES, AND INDIVIDUALITY

The chief factors involved. A complete history of one's surroundings and of his imaginative activity at various ages would not only be an illuminating and complete revelation of his character but would show clearly the stages of development through which he has passed. It would seem that a large collection of the imagings of children at various ages would, when classified, reveal general truths regarding the characteristics of imagination and the stages of development through which children pass. The author has collected many instances of imagination and examined them with this end in view, but has found definite formulation of truths difficult. The natural and social surroundings of children, their special experiences, and their own individuality are such important factors that age differences are obscured.

The influence of material surroundings and of special experiences is clearly shown in the following:

When nine years old I was living on an island of Puget Sound. Our home being on the shore of the island, we girls found much pleasure in "beach combing." In fact, the low tides usually found us out looking for shells, starfish, and pretty sea mosses. At times of extreme tides we were given a broader beach to search and quite frequently found new specimens.

I think it must have been these extreme tides which caused a secret wish that the water would go out of the Sound for a period of time long enough to search the bottom of the ocean in that vicinity. Many times I found myself trying to imagine what the scene would be in such a case. The millions of fish, sea plants, animals, and wrecks, also money and valuables, which I could picture on the ocean floor are still very plain. The most striking feature of this imaginary adventure, however, was the awful catastrophe which would result if the water should come back suddenly and I happened to be some distance from the shore. The thought of the race before the oncoming wave of water still revives a feeling of fear.

A short time after we moved from the island the passenger boat that plied between our town and Seattle was sunk by a collision with another boat in a dense fog. The account of the disaster brought up a clear picture of the conditions that might have occurred during the sinking of the boat. I could see a few leaping from the upper decks, but most of the passengers seemed to be in the lower cabins and their rush for the stairs or doorways was most pitiful. Many broke windowpanes in an effort to escape, but the water rushed in with terrible force, causing the cabin to fill in almost no time. The boat in a very short time had found its way to the ocean bottom, where I again could see it as the water receded, and I was investigating the unknown depths of the sea. I was twelve years old at this time.

The effects of social surroundings and especially the influence of an older and admired companion are shown in the following case of a five-year-old child in the same house with a normal student:

Almost every morning E. puts something edible in a bag while I am putting up my lunch, and keeps bustling about, keeping up a rapid fire of exclamations such as, "My, don't we have to hurry for that car!" "Never do to be late in my

school, will it?" While I am making my bed she spreads hers, saying, "Can't go and leave our rooms looking like this, can we?" She puts on her hood and coat, gathers up all the books she can carry, hurries with me out of the door, and says, "My car does n't go the way yours does." Her mother tells me that after she has walked up and down in front of the house a number of times she comes into the dining room and spends hours either getting her reading or spelling lessons or pretending she is a teacher; always eats her lunch before she "comes home" from school.

The other evening she saw the grade cards that I use in the training school, and immediately wanted to know what they were for. After explaining them I gave her some, and each day until she tired of it she would come and show me the marks the dog and cat had received.

Individuality is prominent in the following reminiscence, although the person is very suggestible and the imagination changes with age:

One day when I was four years old I saw my mother looking over the garden with a troubled expression. She said, "The rabbits are eating up the lettuce. I am afraid we 'll have to put salt on their tails and catch them." The next morning I went to the garden with a sack of salt and caught sight of a "cottontail" eating lettuce. I ran after her shrieking, "Here, Molly Cottontail, salt! salt! salt!" but she scampered off, and I was left standing there looking over the garden hedge, holding my salt, with tears of disappointment in my eyes. I felt that I must catch those rabbits, so I set about sprinkling salt on every weed that was high enough for a rabbit to run under, thinking perhaps some would fall off on their tails and they would be caught. I went off to the grape arbor and there fell to playing with my dolls, thinking that in the morning I would find scores of rabbits sitting in the shade of all of the weeds in the garden.

They would all be pink and would lay pink eggs, and instead of the yearly "corn carnival," that was a very festive occasion in Nebraska, they would have me give a parade with my rabbits. We would descend from the clouds above the Methodist church, I sitting in a pink wagon drawn by rabbits as big as horses, that I had made fat by feeding them on corn cobs (a commodity used for fuel on account of the abundance of corn in this region). I would wear a pink hood, and all the rest of the rabbits would pull wagons of pink eggs, and at the end of the parade I would have a pink dog walking beside a pink cat.

My sister, who was about eight years of age at the time I was five, came to me in the garden one day and said, "We must make a sacrifice and atone for our sins. We are all sinners." "I am, am I?" said I. "Well, I'll break your doll, if you say I'm a sinner." "Now listen," she said, "you are a sinner and so am I, and we must sacrifice the best thing we have." My father had given us each a solid gold link bracelet with a padlock in the form of a tiny heart and a little gold key only a few days prior to this, and both of our minds flew to our bracelets. "Yes," she said, "we must sacrifice our bracelets," and we went to the house and got them and returned to the garden. She picked out a currant bush in the most remote corner of the yard and said, "We will bury these forever. Dig a hole — now dig one for me." "Dig your own," I said, for I didn't care much about the whole proposition, anyhow. We buried them, and she said a prayer over them. Next she said, "Now shut your eyes and walk fifty steps before you open them." We both did so and when we opened them, for the life of us we couldn't tell which bush we had buried the bracelets under. "If you look for that bracelet," she told me, "every gooseberry in the garden will turn into a stone, and every robin will die this winter because they haven't anything to eat."

I imagined the robins would lose their toes, wings, and beaks if they didn't have gooseberries, and finally they would lose their feathers and turn into fishes. The next day I wanted my

bracelet and hunted for it. So did she, and we hunted for over a month but never found them.

We had a bed of tansy in the yard, and everyone knows that ants won't go near tansy. I imagined that if my mother would let me go away for a day or two I could lay rows of tansy around the world, and all of the ants would jump into the ocean. I began by fringing two sides of our yard with it and soon got tired of the proposition. I decided that since the ants bothered our neighbors as much as they did us, that they could help, too, if we were to accomplish the deed.

We had a big pine tree in the yard, that moaned and sighed at night. Many is the box of headache pills that I buried at the foot of this tree to relieve it of its pain.

When I was six we were going to move to Wisconsin, and I imagined some very definite things about the appearance of the place in which we were to live. I imagined it would be a big yellow house on the edge of the forest, and that each day I would take my dolls to a lake in the middle of the forest, where we could see fairies making angel-food cake in the hollow trunks of trees and baking it on the sand on the banks of the lake.

My sister, of whom I have spoken as being about three years older than myself, used to tell me that I was adopted and that my name was Louise Smith before I came to live in her house, and that was the reason I didn't look like any of the family. It took little to convince me, for I had heard many visitors say, "Where does she get her big eyes from?" "Her hair is not the color of anyone else's in the family." "She doesn't act like either her brother or sister," etc. I imagined that I had been the child of very wealthy parents, and that one day when my mother was shopping I had gone for a long ride by myself. I had ridden so far that I couldn't find my way home. I believed this adopted story until I was fully twelve years of age, and when in a melancholy mood I would cry and beg my mother to tell me who my real mother was. Then

I began to show a marked resemblance to my brother, so my convictions were slowly shattered.

When I was about twelve years old I got an idea that I wanted to go to boarding school. We were living in Denver, and I sent for every catalogue of a boarding school that I could find in magazine advertisements. I daydreamed for months over the idea and made up my mind that sometime, when I should inherit the money to which I was to fall heir, I would send all the girls to boarding school who wanted to go. I would have a big summer house for them to visit in Vermont in the summer, because it was too far back to Denver; I would have one girl become an artist, one a pianist, one a domestic-science teacher, another an actress, and the rest should all get married and name their children after me.

At about this time my father was in the theater business. I went to the theater often and came home determined to be a great actress. I set up a row of candlesticks in the attic for the footlights and put on all the old finery of my grandmother that was kept in an old walnut chest in a dark corner of the attic. I swept across my improvised stage with all the dignity of an empress. I talked continually to my gatekeeper, generally a pile of blankets near the door, and explained how I should have him shot at dawn. I would have a dagger concealed, and it was generally a pie knife with a black walnut handle. I imagined that this had been given me as I entered the prison gate by a faithful slave of my husband, who was sitting in the castle bemoaning the loss of his wife.

About this time (twelve years of age) I was studying Africa in geography, and one morning I got up and told of a wonderful dream I had had of a trip through that country. My father thought it was so remarkable that he said it was worth printing. I immediately began to plan my coming career as an authoress, and wondered how soon I could get money enough saved to start sending girls to school. My nurse had always tried to make me sleep on my right side so I would n't dream, and

whenever I wanted a good dream I would wait until she had left the room at night and then lie on my back. I thought perhaps I could sleep on my back at night and would dream more and perhaps could then write a book about once a week.

Characteristics of imagination at different ages. From a large number of papers describing the imaginative activities of children the following are taken almost at random to give a bird's-eye view of the field of imagination at various levels from two to sixteen. At two and three there are imaginative imitations of making pies and candy, bathing children, nursing sick dolls, acting as huckster, groceryman, and jitney driver, telephoning, and playing on the piano. There are also many instances of imaginary companions.

At ages four, five, and six, besides many of the above activities, there are tea parties; acting out the stories of Uncle Remus, "Three Bears," etc.; planting candy and money, hoping for an increase; playing conductor of a car; playing church and Sunday school; making calls; seeing angels in the clouds, goblins, giants, and all sorts of wild animals in the dark, and shooting bears and lions in the daytime; making up little stories and, in several instances, playing with imaginary relatives.

For the ages from seven to eleven there are instances of impersonating tree dwellers, an Indian, a fairy princess and various characters in books; of having tea parties in proper form; teaching school and using school materials; telling fairy stories; dramatizing a funeral; thinking of self as adopted child; going on various voyages as captain; making a trip to Alaska; enacting the battle of Manila; dressing and acting the part of grown-ups; telling bigger stories than others have told;

being afraid of bears in the woods and of ghosts at night; playing house with an imaginary husband.

In the next period, twelve to sixteen, we have fear of dropping baby; fear of white slavers; daydreams of life in England with real and imaginary family and friends, also as a school teacher; imagining stories like those read; writing poetry; daydreams of a magic typewriter that could be made to give information or anything else desired; making up continued stories; imitation of sleight of hand and imaginary taking part in a game of football; visions of life in a new place, induced by letters of a former teacher; imaginary experiences as a sailor; dreaming of self as a fine lady, later with many lovers; picturing self as nurse taking full charge of injured persons in an imaginary auto accident.

From such a view of the imagination at various ages we conclude that in the early years it is imitative and playful. The influence of the immediate environment is also very marked in the imitation of persons, processes, and occupations. Children are continually playing that things and persons are different from what they are and striving to give reality to their mental representations by appropriate movements either with or without objects to represent the things or people involved. They delight also in taking the character of another person or animal, and imaginary companions are especially common. At the same time they ascribe personality to flowers, trees, and even to stones. Food and fear instincts are prominent stimuli to the imagination.

In the period from six to twelve, imitations of social forms are numerous. The chief stimulus to the imagination is not provided by the surroundings but by what is

heard of distant places and by stories; yet environing materials are utilized in making the representations. Objects and imitative acting are still used to give reality, but not so much as formerly, while expression through language is much more prominent. Fear still has a considerable place, while curiosity stimulated by the distant and the mysterious often leads to the filling in of details by the imagination. Much playful imitation of adult activities is shown.

After twelve, objects are used hardly at all as assistants to the imagination, and dramatic action is less common. There is more serious imitation of adults and adult activities. Fear is now of burglars rather than of bears, and frequently takes the form of social fear, or bashfulness. The future rather than the present is at this time the basis of imaginative construction, and the scenes are often laid in distant places. The sex instinct and the æsthetic impulse, either one or both, now have a prominent place in the imagination.

Periods of imaginative development. There is no sharp break in the development of the imagination, and the changes already indicated are more or less on the surface. There are deeper processes of adjustment of the mind to the universe in which it dwells. The prominent phases of these integrations and readjustments are indicated in what follows and serve as a means of distinguishing the stages of development of the imagination.

After children have gained the power to produce and combine images they frequently revel in a playful use of the imagination, in which things are given whatever qualities are most pleasing and brought into whatever relation is most agreeable. The child thus makes the world into

what he wishes it to be at the moment, but during all his active dealing with things he is himself becoming impressed with the permanent character of the objects with which he deals. He learns something of the laws of the world in which he lives, and which he cannot change, in contrast with the imaginary kingdom over which he has almost complete control. Only as he gains knowledge of things as they are can he direct his imaginative activity in representing desirable conditions as brought about through possible means.

At this stage he is generally introduced through stories and the reminiscences of elders to a distant world differing from that immediately surrounding him. He learns of strange objects and unfamiliar events governed by laws new to him. At about the same time he is also made acquainted with the realm of fairy stories, in which wishes have much the same place as in his earlier playful fancies. For a time the world revealed by accounts of distant places and times and the one presented by the fairy story are enjoyed as a pleasing contrast to the prosaic present and are not clearly differentiated from each other. Later the child distinguishes between these two realms, just as he earlier did between the realities of sense and his play fancies. He wants to know whether stories are true, that is, in accordance with the laws of the universe, or are merely creations of fancy and fairyland.

Interest is then usually centered for several years upon history and geography, and the child learns much regarding the different parts of the earth and the succession of events leading to present-day civilization. The wish and the play elements at this time demand stories of adventure which depict a more rapid succession of exciting inci-

dents than is supplied by daily life or ordinary geography and history study.

With the dawning of adolescence, and the emergence of fresh instincts, and new social, æsthetic, and moral interests the imagination is stimulated to greater activity. At this time the wish of the fairy story has almost no place, but the most desirable of all that is possible in the real world is chosen for attainment, and the imagination, directed by what is known of the laws of reality, is exercised in representing the means of gaining such ends. In this period of idealism the wish predominates over the probable, but is not directly opposed to what is conceived as possible. The problem for the youth and the man is that of finding means of harmonizing his desires with the actual possibilities of life as presented to him, taking into account his individual capacities and opportunities. The imagination is continually exploring the future, while the reason decides as to ends and directs in the choice of means of attaining them.

The period from three to six is preëminently the time in which free play of the imagination is contrasted with fixed sensory experiences of the immediate environment. From six to twelve the imagination is occupied with constructing the distant world of reality and perhaps reveling in a fairyland where wishes and fancy play a large part. From twelve to maturity is the period of adventure, romance, and idealism in which the real world is the theater of the imagination, but the desirable is selected and action is speeded up and intensified.

The chapters that follow discuss and illustrate some of the chief features of the imaginative activities of these periods.

EXERCISES

1. Illustrate the influence of environment on both constructive and creative imagination.

2. Describe the characteristics of your own imagination at different periods.

3. What characteristics of your imagination have been constantly present at all ages?

4. To what extent have your images been replaced by word symbols and your plans made entirely in accord with facts and reason uninfluenced by fancies and desires?

CHAPTER XI

THE PERIOD OF IMAGINATIVE PLAY

Playing with images. When a child gains the power to form vivid images and realizes that they may be modified and combined in various ways, a new world of enjoyment is open to him. He plays with images as he plays with toys. The world of reality is not always to his taste and he cannot do much in the way of changing it, but he may choose from his stock of mental pictures those that are agreeable and change and combine them at pleasure. They do not maintain a fixed form like real objects, nor do they refuse to obey his wishes as people often do. This activity of the creative imagination usually becomes prominent between three and five and continues in varying degrees, according to individuality and the character of the social environment, even into adult life.

This play of the imagination begins in dramatic imitation, in which things are supposed to be different from what they really are and where the child modifies the original experience to suit his own pleasure. It is shown in his noting of fancied resemblances and in his tendency to animism. He pictures objects different from any that he has known and often tells of little experiences that are imaginary. Sometimes he seizes upon poetical and musical phrases and combines them into a little song which he enjoys repeating. Usually he is more interested in the character of the sounds than in the meanings associated with the words.

The freedom with which he invents imaginary experiences and describes them depends upon his social environment. If there is someone who is interested and amused he is stimulated to go on weaving new fancies. If he is rudely laughed at or harshly reproved he may give little intimation of his imaginative life, but in a large proportion of cases he will continue to create for himself experiences more enjoyable than those supplied by the real world in which he lives.

The following incident told of a four-year-old boy is a good illustration of playing with images and giving reality to the performance by means of appropriate movements:

One morning my sister softly called me and tiptoed out on the porch, which is five or six feet higher than the yard. With a motion for silence she pointed out Donald. He was going through apparently aimless motions. But as I watched I saw that he was tying something around a post, saying as he did so, "Now pony, don't you pull and break that rope." Then swinging his arms and with an important air he marched up to the corner of a large box and asked for his mail, meanwhile keeping careful watch of his impatient steed. Putting his mail into his pocket and remarking on the weather to an imaginary postmaster, he strode to his horse, went through all the necessary motions of untying and throwing rein over his horse's head, jumped into his saddle, and was off, galloping through the gate and down the road, all of this without even the customary stick or string with which most children play horse. A day or two later a friend called, bringing a little boy of six. The other children had gone to the store with their father and Donald was playing outside; so we sent George to find him. We presently heard voices under the window and, lifting the sash a little way, I listened. Don was telling George to go in the house and get his harness which was hanging on a certain

doorknob. George came in fully expecting to find a harness of some kind, but not even a string was to be seen. He went back, saying that it was n't there. Don came in and, in a very businesslike manner, walked up to the doorknob, lifted the harness off, and walked out, George following. Of course George could n't understand what Don was doing, but Don did n't know that. He began to harness his team of mules, talking to them, calling them by name, — Liz and Sue, Pete and Punch, etc., — telling George to look out or he would get his head kicked off. Finally he threw the lines to George, telling him to hold the team while he opened the gate. It was too much for George, who disgustedly turned away, telling Don he was crazy, and came into the house. Donald merely looked after him in surprise, glanced up and saw me, smiled in a shy way he had, picked up his lines, and drove his team through the gate and away.

Influences affecting creative activity. The pleasure that the child derives from dramatic imitations, in which incidents are reproduced at will in entirely new settings, together with his experience in ascribing to objects, animate and inanimate, characteristics and feelings which he has observed in persons, prepares the way for the creative imagination and stimulates it to activity. In dramatizing an event the child reproduces only the parts which are most interesting to him, and presently he may add or substitute objects or incidents not in the original which give a more pleasing effect. Thus does the creative imagination become active, and many children derive more pleasure from its exercise than from most of their real experiences.

The child's desires are strong, and at first he knows little of the fixed character of things and the laws governing them, so he often modifies them in fancy according to his pleasure. A boy of six planted some melon seeds

which never came up. Often, when going to visit the spot, he pictured so vividly the vine as grown and with large melons that he actually had some expectation of finding it true and was disappointed to see only the bare ground. When a child imagines things and persons as being and doing what he wishes, but without having any actual experience with them, there is no check upon the imagination and he may create a world of his own which is to him a vivid reality. One young woman writes:

> Once I remember looking up into the clouds and seeing a towered city there shining in the sun. I imagined that it was real and sometimes looked for it afterward. Another time I imagined that I was an angel, and ran about flapping my hands and feeling very ethereal. Remembering that angels conducted souls to heaven, I ran to my mother and inquired, "Are you dead?" She did not understand my play and began to talk seriously to me, whereupon I dropped my celestial rôle and ran away to hide behind the clothes basket in the laundry.

Even in the period of playful imagining, when desire and fancy have most influence, there is a strong tendency to complete and make vivid every idea suggested, whether the result is agreeable or not. Only the child with initiative and will power invents a world according to his desires. Others merely construct a more definite world of whatever type is suggested to them. In response to this tendency every person mentioned is imaged in greater or less detail. For example, one young lady reports that she even imaged in detail the "farmer" when playing "Farmer in the Dell." Imaginary beings such as the sandman, fairies, Santa Claus, are definitely imaged even when pictures of them have not been seen. One child imaged the sandman thus: "I thought that every night

after I had gone to bed a very large man with a bag of sand on his shoulder flew into my room and sprinkled sand over my head, which put me to sleep."

Another says: "I imagined the sandman going along the beach filling his bag with sand and then about dusk coming around to all the houses and sprinkling sand over us." Doubtless the writer was familiar with the beach and the habits of hucksters, and this knowledge was reflected in the imagery produced by talk of the sandman. One child imagined a picture so vividly that she could scarcely realize that it had not been a reality, and many children of four to seven tell wonderful imaginary tales which they sometimes actually believe. This should not be regarded as lying, but children should be led to distinguish clearly between the imaginary and the real.

The fact that many children do construct a literal Santa Claus or sandman emphasizes the importance of the caution that such personages should be presented to children in a *playful manner*. This helps to prevent a mythical personage from becoming too real in the child's mind. Thus he may pass insensibly from the first concrete representations into an appreciation of the more abstract spirit or force symbolized. That children are sometimes severely shocked when they find Santa Claus is not real is not due so much to the fact they have been told stories about him as it is to the literal and serious manner in which he has been described.

Present objects and events as well as past experiences are often woven into imagery, as when a little girl thought that a large house near her home was a fairy palace, and another thought she saw Heaven through the clouds. This is also shown in the case of the little girl who said that

thunder was God knocking on the floor of Heaven, and of another who thought that the Sunday-school superintendent was God, since he was to her the principal personage in "God's house."

Besides this general tendency to weave into fancy whatever knowledge or experience one possesses, there are two important factors involved in imagination, namely, a lack of definiteness in the stimulating object or idea and an emotional interest of some kind impelling one to mental activity along the line suggested. Cloud forms and the flames of an open fire have always inspired the imagination. We see "castles in Spain," characters in song and story, visions of the past and future, according to our surroundings, previous experience, and mood. Mysterious actions and words are effective stimuli to the imagination of many persons. Music and works of art, especially pictures which are vague in detail, poems or stories which suggest rather than express situations and emotions, may appeal strongly to the imaginative faculty.

In no case will any of these stimuli produce much activity of the imagination unless they arouse some feeling. On the other hand, if emotion of any kind has already been stirred, almost any indefinite stimulus may result in great activity of the imagination along the lines suggested by that emotion. Indefinite shapes or unrecognized sounds may fill the mind of a timid child with pictures of bears and wolves ready to attack him or of a "black man," "rag pickers," or "gypsies" waiting to carry him off.

In all such cases the child has little or no control of his imagination and lacks knowledge with which to combat his fears. The images come without his volition, and

the distressing scene proceeds in spite of any effort he may make to end it. The child lying helpless in the dark, with fear-inspiring images aroused by indefinite stimuli, is in quite a different situation from the boy in daylight, shouldering his gun to shoot lions that his eyes tell him are not there. Older children and adults may gain a control of imagery somewhat independent of physical circumstances, but to the small child this is impossible; rather, in his case, imagination possesses and controls him.

Imaginary companions. From earliest infancy people are the most interesting things in a child's environment. It is not strange, therefore, that they should occupy a prominent place in his mental operations and creations. Not only may he endow all the objects of nature with the characteristics of human beings, and imagine the personalities of people, including his own, as changed, but he creates new characters to serve his purposes. In his dramatic play he takes great pleasure in acting as if he were a dog, a bird, a horse, an Indian, a policeman, a circus man, or a general. When he assumes another personality than his own he not only acts in the way that seems to him appropriate but he desires other people to treat him in a manner befitting the character. He frequently has very definite ideas of what is necessary to the part and may go to a great deal of trouble in order that everything may be carried out in just the right way.

This is often one of the peculiar features of creative imagining even when it is supposed to have free play. The child is dealing with things over which he has control, and yet he seems to feel bound by some law to which his imaginative creations must conform. In children of an artistic and poetic temperament beauty, as in the case

of adult artists, may be the controlling law, but in a large proportion of cases the law to which their imagery must conform is based upon some kind of similarity or analogy to what obtains in the real world as they know it.

In playing with dolls the child often gives a definite individuality to each one and then requires that it shall maintain those characteristics. One little girl carried this individualization so far that when one of the dolls with which she was carrying on an imaginary conversation replied just as she had planned for it to reply she was displeased, because she wanted that one to be more independent and original.

In playing with real things which he has endowed with imaginary characteristics the child is rarely if ever deceived into believing that they actually have these characteristics. His senses contradict his images, so that the thing as it is contrasts with what he imagines it to be; but by acting as if it were the thing he imagines it, and getting other people to act in the same way, he is able to produce a semblance of reality which is no less pleasing because he is conscious of the fact that he himself has supplied the characteristics which it does not really possess.

Many children, during the age of make-believe, not only give personality to objects, and modify in imagination the characteristics of individuals, but they create new personalities. To such creations the name "imaginary companions" has been given. It was formerly thought that only children who had few or no real playfellows ever indulged in such fancies, but inquiry reveals the fact that a great many adults remember having had such companions in childhood, and since it has been demonstrated that children who at three or four talk a great

deal about their imaginary playmates may be utterly unable to remember a few years later that they ever had any such intimates, it would probably not be an overestimate to say that at least three fourths of all children have had, at some time, one or more imaginary companions.

Not always are these companions wholly imaginary; often the fictitious person is represented by some real object and occasionally by an animal, such as a cat or a pony. In other instances there is nothing to represent the absent person who is not purely imaginary, but some one known or heard of. Sometimes it is found that the casual mention of some individual has led the child to construct an ideal personality suggested by the remark and to adopt him as a playfellow.

Again, he may be a character in the child's dramatic representation, such as a pupil or a policeman, but not endowed with individuality. Sometimes the imaginary playmate is not a person but a pet, such as a dog or a horse. Oftentimes the desire for a brother or sister leads to the creation of an imaginary one. A little girl of four who delighted in telling of the deeds of her imaginary brother one day looked very sad as she told that her brother was very, very sick. "We must take him to the hospital. He has appendicitis." Later she had a little party in celebration of his home-coming. The first of the following accounts was given by a little girl ten years old:

I have had two imaginary friends. I was about eight years old. I had them for my pupils when playing school, and my children when playing house. One of my imaginary friends was a little girl named Marion. The other was a boy named George. I do not have make-believe friends now. I am too old to have them.

M., a little boy of three years, had an imaginary friend, Harbell. When M. had his bath he made believe Harbell was with him, and he would splash water all over him. He greatly enjoyed this friend and played with him until he was five years old. No one knew where he heard the name " Harbell."

One day little E., aged three, came into her mother's sewing room. Going up to her mother, she said, in a very shy way, " Mother, I have a little new friend, Bessie, and here she is." The mother greeted the little new friend, saying, " How do you do, Bessie. I am very glad to see you." There was no little girl present. E. played with this imaginary friend until she was five years old.

A little girl of three has an imaginary friend, " Twinkles." One day her grandfather came into the living room and went to sit down in the comfortable chair, when the little girl cried, " O, grandfather! don't sit there, Twinkles is sitting there."

Although children who are alone a great deal may feel the need of such companions more than others, yet children with many playmates may get much pleasure from them. The imaginary companion is much more tractable than real playmates and is especially appreciated after a real companion has proved uncongenial or contrary. Sometimes two or more children may join in playing with an imaginary companion. Often, however, if they are of about the same age, and almost equally imaginative, they cannot agree upon the characteristics and details of behavior of the unseen playmate. In such cases if they can take some real object and give it a personality which it is supposed to maintain day after day, then this imaginary companion may be accepted and enjoyed by both. Where one child has an imaginary companion, and another child manifests interest in it and does not attempt

to modify its characteristics, then they may play with it quite successfully for some time.

In connection with imaginary companions there is not only a good deal of dramatic play but also the constructing of imaginary experiences.

When a child I used my imagination most in playing house and school. My sister and I played together. She lived in one room and I in another. Another room was used for stores and a post office. We went to imaginary stores and bought imaginary goods. On our way to a store or the post office we often met imaginary people to whom we said "good morning." Our imaginary butcher and baker called for orders. Sometimes I expected company from Boston and went to the station to meet the visitor. All the way home we chatted. Sometimes I talked for myself and sometimes for her. I brought her home with me, gave her tea, and took her to see my sister. Then we both entertained her as we saw our mother entertain her guests. At other times we got into the hammock and swung and swung until we got to Boston. Then we got out and met imaginary friends who took us home with them. Next we went shopping. When our shopping expedition was over we told our friends we were so sorry we must go home. Then we hurried to catch our train which was the hammock.

In playing school we arranged chairs just as the desks are arranged in school. In these chairs we had make-believe scholars, as we used to call them. We whipped imaginary children and reported them to an imaginary superintendent. Thus, in everything we played we used our imagination.

Sometimes these invisible personages furnish a convenient means of shifting responsibility for behavior.

M. and L., two sisters ten and eight years old, played with some brownies made of paper. Every night, before the girls went to tea, they turned everything upside down in their doll

house and in their own pretty room. When their mother asked the reason for all the disorder, the girls said, "Oh, the brownies did it." They played this so much, and their play seemed so real, that at last all their errors and misdeeds were blamed upon the brownies.

Another child has two imaginary playmates, one of whom is responsible for all his bad behavior, the other for his good conduct.

The little girl whose companion is told of in the following instance had a strong love of caricature.

Mr. Bauban seemed from the first to be a grotesque. He lived in the ground, was wholly deformed, had but one eye, was an amusing companion rather than a lovable one, and could be called forth at will by stamping upon the ground. He originated, I have thought, from a desire for ready reference in case of quandary. For instance, in reply to "Why did you do so?" "Mr. Bauban told me to do it." "I knew it, because Mr. Bauban said it was so," etc.; this while she yet lisped the words. He was, in a way, a defense in which she fondly hoped we would believe. She always seemed amused at this gnome she had herself called into being; it pleased her to see us puzzled by his impish and unaccountable ways. She would describe at length his ménage underground, his cook, his winding passages, his essaying forth to market or to visit. He did not come forth at night. This did not occur to her, as she could not grasp the fact that anything went on at night. She put him safely underground herself before she went into the house for bed.

A delightful *bon mot* seemed to end the existence of Mr. Bauban. When we went into the Boston subway, with a sigh of satisfaction she said, "*This* is where Mr. Bauban lives."

The child enjoys, in imagination, experiences different from any that he has ever had, and in many cases persons whom he knows, perhaps more or less transformed, as well

as purely imaginary people, play a considerable part in these incidents. The following illustrates the peculiar fancies of children, especially those deprived of ordinary pleasures:

Little E., who was a delicate child and unable to run and play with the other children, used to go into the living room, shut the door, take her kitty by the tail, and spin it round and round. She would make believe that the motion was a part of herself. It would seem so real that the motion became a part of her very being, and she would make her "motion self" do all sorts of interesting things.

In another of her motion plays she made believe she could fly. She would make the "motion self" become a bird form which she called her "bird self," and when she could n't run and play with the other children, she would make believe she was a bird and play that the bird was active, just as the children were.

She played with flowers, made believe they were actors and actresses, and had plays lasting several weeks. Sometimes she made believe the flower actors were people, at other times she kept them flower actors. This same little girl made companions of the trees; sometimes they were silent friends, sometimes Indians, ghosts, or fairies.

Frequently the same people appear in a series of events, and the result is a sort of continued story. Inquiry reveals the fact that a good many people have at some time in their lives created such tales, and many of them continue the practice in adult life. Doubtless some novels are the outcome of such imaginative early fiction, originated without any intention of writing a story. This, however, is more common in the next period.

A young woman writes:

I often took pansies for dolls because of their human faces; the rose I revered too much to play with. It was like my best

wax doll, dressed in her prettiest, but always sitting in state in a big chair, in some secluded corner where little visitors would not spy her out. I loved these nature dolls far better than the prettiest store dolls, and ascribed special psychic qualities to them. Violets were sturdy little ones, who enjoyed a frolic and could be played with. The pansy was a quick, bright flower child; the rose, her grown-up sister, pretty always, charmingly dressed, but a quiet and sedate spectator. The hepaticas were delicate children, invalids and cripples to be tenderly cared for. They watched their livelier brothers and sisters and were entertained by stiff maiden aunts, marigolds, with long curls. The dahlias were colored servants; yellow violets were mischievous, fun-loving boys; sweet peas were the nurses, with cap and kerchief; the morning-glories were governesses and teachers.

EXERCISES

1. Give illustrations of the playful imaging of children in connection with objects.

2. Describe in detail an instance of imaginary companionship.

3. Give various illustrations showing what stimulates the imagination of children of three to six and of the way in which they express or accompany their mental picturing.

4. If an older person definitely asks children to imagine certain things and tells them what to do in connection with this mental picturing, are the children getting training in constructive or in creative imagination?

5. If the teacher merely suggests by words or acts and encourages the children to represent the details, what kind of imaginative activity is being encouraged?

6. Report some kindergarten exercise and discuss its value from the standpoint of the preceding questions.

CHAPTER XII

CONSTRUCTING THE REAL WORLD

The period of constructive imagination. Although there is more or less use of the constructive imagination in early childhood and thenceforth into adult life, its employment in mentally representing the real world is most prominent in the period from seven or eight to twelve. Earlier than this the imagination is more fanciful and playful, while later it is replaced in part by symbolic thinking. That constructive imagination is prominent at this time is due as much to social and school influences as to any fundamental change in the child's natural tendencies. He still inclines to represent things according to his desires or as his emotions impel him, but experience teaches him that it usually pays to picture things as they are, and nearly all his school training is in the direction of requiring him to image in accordance with the teaching of adults. There is probably also a natural tendency at this time to classify and correlate his mental pictures.

Comparing and constructing. A child often hears of persons, places, and incidents through the conversation of those around him and is stimulated to picture them. Later he perhaps has the opportunity of seeing the persons or places mentioned or of witnessing events such as he has heard described, and he naturally compares his memory images with the realities. This process is

continued into adult life, and imagination in this way is influenced more and more by the real world.

The following is a good example of the way in which the distant in time and place may stimulate to the formation of definite images:

When I was ten years of age we planned and undertook a trip east to New York State. The planning was the part we youngsters enjoyed, as we settled in our minds just what we would take to eat and wear and how every part of the country would look, as we traced our journey on a railroad map. We imagined just how it would seem at grandpa's, in the little village, and at grandma's, on the farm. All our greetings and actions, we agreed, should carry out the "wild and woolly West" idea, so that our Eastern cousins (three and five years old) should know we were from a very different sort of country. We laid plans for horseback rides on the farm in such detailed fashion and with such enthusiasm that we experienced more delight than we could ever realize. Our greeting for old and feeble grandma was all planned exactly as we expected to execute it. We even drilled on it, as we sat on the front steps talking it over.

In listening to stories and descriptions the child understands what he hears only by comparing the objects and incidents mentioned with those in his own experience. At first the images derived from familiar surroundings dominate his mental construction of the objects and events described, and reminiscences of his own past experiences contribute largely to his enjoyment of stories. The child insists upon certain tales being repeated over and over until they take a form of reality in his mental life and become a basis for understanding other stories.

Later the child's constructive and creative imagination is greatly stimulated by descriptions of objects and events

which contrast sharply with those that he has experienced. This is one reason why stories of giants and dwarfs are so enjoyable and why fairy stories, in which things happen so quickly and in such marvelous ways, are sources of pleasure. Such stories may for a time supplant the child's interest in real life. Usually, however, he compares the world of every day with this imaginary world and, through contrast, gets a better idea of realities.

It is not necessary, however, that stories and descriptions shall be of giants, dwarfs, and fairies in order that the imagination may be stimulated and impressive comparisons made. The child may be told stories of his parents' youth amid surroundings quite different from his own, or he may have descriptions of foreign countries with their strange animals and plants, where the dress and customs of the people vary greatly from those familiar to him. Stories of history and biography also give valuable material. In all these cases the child compares his own personal experiences with the realities of other times and places and constructs a picture of the real world which is much broader and more varied than had he depended on his experiences alone. In proportion as his imagination is vivid and his constructions in accordance with descriptions does he acquire knowledge similar to that which may be obtained by years of travel and observation.

Truth and fancy. Tales of giants and fairies, historical and geographical stories, alike open the door to a new realm of imagination which is contrasted with the world of his personal experiences. The principal difference between these stories lies in the greater freedom of the fairy tale as compared with stories of real life in which events are governed by fixed laws. Children usually recognize

this difference and frequently ask whether a story is true. This tendency should be encouraged, and rather a sharp distinction should be drawn between fairy stories and those concerned with real things and events. One should feel in listening to a fairy story that he is living in a different world, a world of playful and enjoyable fancy. For this reason literal descriptions of things as they are, if used at all, should be chiefly by way of contrast. Thus the child may enjoy to the full this realm of fantasy (which has no laws except those of pleasure and beauty) and, at the same time, gain a knowledge of the world of reality in which there is less freedom and where natural laws determine the course of events.

Myths and legends introduce the child to the story land of ancient peoples, and although stimulating and interesting they are sometimes confusing. Some of them are the fancies of those who lived in the dawn of time, while others represent their imperfect conceptions of the world about them. Such stories do, however, reveal to a more mature mind the world of which the ancients conceived as distinctly different from the well-ordered universe of present-day scientific thought.

The imaginary made real. If the child pictures vividly and accurately the world beyond his limited horizon, as it is and has been, he has acquired new and more varied material with which his imagination may work. His broader knowledge of things, of people, and of the forces and influences back of natural phenomena and historical events stimulates his imagination to new activity and directs its constructions in harmony with the possible and probable. Through the medium of language and pictures the child's environment is immensely enlarged, and this

wider domain may become almost as real to him as the narrower one in which he has his physical being. He may compare his mental images of places, industries, and events with pictures and descriptions in much the same way as he formerly compared his anticipations of the seashore or of the mountains with the real experiences. With the knowledge that he has, he may form mental pictures of probable events, while the daily news reports help him to verify and correct the anticipatory constructions. He is thus enabled to participate not only in the real experiences of the immediate neighborhood but also in the broader life of the world as revealed in newspapers and magazines and in geography and history. The following are good examples of anticipatory constructions of possible events:

I used to plan long journeys and imagine our getting ready, what we should do while on the journey, and what we should see and do after reaching our destination. I always liked to imagine people whom I had never seen but of whom I had often heard my mother tell. When I reached high school I began to imagine myself as a teacher. I pictured the school I should teach, and this varied from a consolidated school in the country to a small log cabin out in the Rocky Mountains. I pictured my brother and little sisters growing up and planned futures for them. I worked out beautiful plans for the house and farm and introduced all sorts of labor-saving devices for my mother. I think that all of my imaginative activity lately has been along this line, continually picturing the future.

Once I was disappointed because rain prevented my going to F., eight miles away from my home. I had been planning to see a moving picture, "Desert Gold," and as a substitute I made up an imaginary story, in moving-picture form, about the

Arizona desert. While my physical being was washing dishes and ironing, my mind was far away among sagebrush and cactus, working out my imaginary picture. I still tell stories to myself, especially at night, for I can think better in the dark. My imagination has made life much more interesting to me, and I hope that it will continue to do so.

Individual construction. Although constructive imagination is directed mental activity, and a writer, speaker, or teacher seeks to produce the same mental pictures in all minds, yet such a result never follows. Descriptions are frequently incomplete, hence there is always an opportunity for the reader or listener to fill out the details from his experience or according to his fancies. Not only do individual images differ but also the manner in which they are classified and correlated. For these reasons children in the same environment construct quite different worlds.

This is especially marked in those who have independence and originality. Such children, though often seemingly realistic, are intensely imaginative. They are eager to gain material with which their imagination may occupy itself and to learn the truth about things, but they wish to represent them in their own way. They do not want fanciful accounts, but desire to work out their own fancies in connection with the truths they have acquired. An extreme example of this tendency is described by J. K. Folsom.[1] After the period of playful imagination, in which spools and other objects were used to represent individuals, real and imaginary, he began at about eight years of age to make more rigid scientific classifications. For several years he was intensely interested in the abstract

[1] *Pedagogical Seminary*, Vol. XXII, pp. 161–182.

truths of science, to which he gave reality by associating them with objects of his play world, now carefully classified and interrelated in a logical way. Truth and logical reasons as he conceived them, rather than desire, fancy, or sentiment, controlled all his mental constructions. For several years he lived in this imaginary world, which was, however, constructed in accordance with the laws governing the real world in somewhat the same manner as a parable or allegory resembles reality.

In the case of L. C. Day,[1] similar independence was shown. He gave expression to his imaginary experiences in a little paper which he published. He made much use of real things and events, but instead of merely picturing what he heard he invented incidents and thus was a sort of god who determined what should happen in his universe.

"Una Mary"[2] also had a self-made world, but the controlling principle in her constructions was not scientific truth or personal power, but sentiment and artistic fancy. She invented many words to express feelings and situations not recognized in ordinary language.

All children show in a greater or less degree this tendency to construct a world different from that presented to them by books and people. Only a few do this completely, intentionally varying from realities. The majority accept the world in the main as they find it and as it is represented to them by others, but fill in the unsupplied details in their own way. The following is an instance of definite construction:

When I was eleven years old I moved to the country and here I delighted in nature. I used to watch the birds and think

[1] *Pedagogical Seminary*, Vol. XXI, pp. 310–320.
[2] *Scribner's Magazine*, 1914.

how it would seem to be a bird. I could imagine a person changed to a bird.

When I became older I used to imagine how the surroundings about my house looked before there were any houses. I can see now the pine woods, and the long stretch of land with the apple orchard on it, and the hills in the distance.

I have always wished to go abroad, and I used to imagine myself on a large steamer, sailing across the waters and visiting the different countries.

Some picture in general what is described, but in the way that is the easiest and most pleasing to them. For example, one girl represented the Southern states as covered with fruit trees, and she pictured oranges rolling on the streets to be picked up by anyone who wanted them. In other cases the imagination is more passive and pictures only in accordance with descriptions, and that perhaps with no great vividness. Such persons need objects, models, diagrams, illustrations, and dramatic representations in order that they may vividly and completely construct what is described.

This more passive use of the constructive imagination is favored by the extensive use of pictures in teaching and by stories of all kinds which give details instead of stimulating their independent representation.

Definite types of images as well as forms of construction often develop. Numbers, days of the week, or months of the year may be thought of as always arranged in certain ways.

One child of eight personified all the numbers and kept that imaginative arrangement until fifteen years old. She had them act out dramas, a sample of which is given on the following page.

1, 2, and 3 were children; 4 was a woman, good and self-sacrificing; 5, a mischievous young scamp; 6, an amiable prince; 7, an arrant rogue; 8, a high-born, haughty lady. 5 coaxes an innocent child to run away from home. He runs until he reaches 10. He stops on the way to help 6, but cannot get him into 12, where he wanted to go, so he drops him next door to 12. The designing 7 persuades 5 to help him instead of 6 into 12, etc. — *Pedogogical Seminary*, Vol. II, p. 107

EXERCISES

1. To what extent do you construct in detail that which is mentioned either with or without complete description? Is this tendency decreased with experience or is it merely regulated more completely in accordance with real events?

2. If children are asked to illustrate or dramatize a story which they have read, interesting examples of the way in which they construct in response to more or less complete descriptions will probably be obtained.

3. If it be admitted that fanciful stories of beauty or those conveying social or moral truths are valuable in training the imagination of children, does it follow that nature myths and others which indicate the scientific and religious ideas of the ancients are better for them than modern nature-study stories which are in accordance with present-day scientific conceptions? Should the ancient myths be given at all except incidentally in contrast with present-day conceptions?

4. Reports should be given of imaginative constructions in connection with various subjects studied. Are mistaken constructions due to any extent to methods of teaching?

CHAPTER XIII

THE PERIOD OF DAYDREAMS

The imagination of the adolescent. The imaginative activity of the adolescent differs considerably from that of the two earlier periods. It is less playful, less associated with physical action than in early childhood, richer in material derived from experience and reading, but with images generally less vivid than those formed during the preceding period, when the world was being constructed in imagination partly as it is and partly in accordance with individual fancy. The wish to actually experience what is imagined is now much stronger. To dream of other lands and far-away scenes and people is not enough, but there is a keen desire to really see them. Most young people long to travel and frequently spend many hours in imagining themselves going from place to place, having thrilling experiences in the countries of which they have heard. They are also no longer satisfied to merely learn of what has been and is being done, but they desire a share in the world's work, and this gives rise to dreams of social, philanthropic, or scientific achievements. His more subjective condition of mind leads the youth to project himself into the world of reality which he created in the preceding period and keeps him from revealing his imaginative activity by outward actions as he formerly did.

This development of a more distinct inner life is partly the result of new instincts and feelings that come into

prominence at this age. These make the youth sensitive to a greater degree and in different ways, and as a result his imagination is largely controlled by new desires.

One who has little to occupy or interest him may have his character weakened by excessive indulgence in imaginative fancies unchecked by real experience or increasing knowledge of realities and unassociated with any plans for definite action. On the other hand, one who is overworked and has no energy left for new interests may lack the opportunity for that imaginative picturing of what may be done and gained which is the chief stimulus to ambition. Fortunate is the youth who has plenty of work and something to be interested in every day of the week, but who has some leisure in which to do as he likes, and indulge in daydreams of a golden future.

In imagination the young person may compete with others on the athletic field, in the classroom, and in the world of industry, science, art, or literature, but the imaginative anticipation of what is to be done or enjoyed in the immediate future is checked and controlled more and more by new experiences. In a similar way more remote ambitions are modified and directed by increasing knowledge of how success has been attained by others in various lines of endeavor. By means of the imagination preliminary explorations are made into the unknown, and in the light of present conditions, and a knowledge of what others have done, plans are made which, even if not carried out in detail at once or later, yet influence future life and character. The changes in objective action and the still greater changes in mental life which take place during the adolescent period are frequently very marked, and all the imaginative activity of this period doubtless modifies

the future either positively or negatively, although some of it seems to reflect only passing whims. The following reminiscences are typically adolescent:

When I was about fifteen years old I began to be very self-conscious and to be very particular about my personal appearance. Before this time I do not remember of ever having paid much attention to my looks. I also grew very sensitive and thought that I had a "temperament" of finer grain than that of other people. I wanted to be alone, where I could imagine how some ideal person would pity me for the lack of sympathy from other people, and I could not understand why my parents insisted on my being so much in the company of others. I very frequently had "crushes" on older women, my mother included. All the others did not last long, but the deep feeling I had so suddenly for my mother developed into a love and friendship which has never grown less.

I was deeply interested in religion, loved to attend revival meetings, and was indignant when my parents refused to allow me to take certain pledges.

My moods were constantly changing from the greatest hilarity to the deepest gloom. I was ashamed of myself for this when I saw how even tempered older people were, as a rule, but I was powerless to restrain my own impulses. At times I would feel so ashamed of myself for being so sensitive that I would put myself as much as possible with other people, and even open up opportunities for them to say things which would be apt to hurt my feelings, that I might prove to myself and them that I had outgrown my sensitiveness. Then a time was always sure to come which found me so hurt that I would literally have to be forced to go and meet people again. I remember also that, at about this age, three or four times it happened that when dressed to go to church with the rest of the family, for no reason I knew of, I would positively refuse to go to church, and would feel like crying instead.

During all this time of about three years, however, I realized that my mental condition was not as it should be, and I constantly strove to become more like my mother.

There was a girl I knew who up to her fourteenth year used to be considered a quiet, shy little backward child, without many interests, given much to crying, very sensitive, very studious. However, in about her fourteenth year she began to develop an interest in athletics; gradually basket ball, gymnasium work, tennis, and skating took their place in her sphere of interests, and she changed wonderfully. Not only did her physical health improve but her disposition changed from a decidedly disagreeable one to a happy, cheerful, healthy attitude. She has continued to develop along this line and is now one of the most charming girls I know.

The alteration which took place in my behavior during one year of my life certainly was "sudden." One summer my behavior was characterized by a sort of nervous restlessness and unwonted activity. It seemed that I had to be doing, doing, doing things all the time. The least thing new aroused my enthusiasm. I became almost a "faddist" in my zeal for certain things, was especially fond of flowers, and "raved" over ordinary sunsets in spite of the teasing of my friends. I seemed to be continually trying to create excitement and was usually successful. I was classified as the "impulsive type," but during the following winter and spring I seemed to "settle down" more and almost approached the other extreme, became disinterested in many of my former "fads," made fewer plans for doing things, rested more, became less confident of myself, in contrast with my former attitude that nothing was too big or impossible to attempt. My friends noticed the change and instead of teasing to restrain my exuberance, made efforts to arouse me to my former self. Gradually, however, a normal condition set in, and I enjoyed a happy medium between the two extremes.

I was very ambitious for honors at school in studies as well as in social phases of the school life, wanted to be considered popular, and was quite selfish in my views for a while. I began to be less "afraid of boys," joined a dancing class and enjoyed it, in spite of the fact that I used to think "boys were horrid" before that. I was influenced by a young lady, a graduate of Vassar College, who was interested in settlement work, and taught in our school for a year, and desired to enter the same field of work. I used to be very fond of children and longed to be able to help the poor suffering mass of humanity in the crowded parts of big cities. I read many stories of tenement life, which developed a broad sympathy and altruistic ideals.

I was always writing something new in the story line. Many a time I 've written a story when studying seemed to be out of the question. Also my creative imagination found vent in my music, which I began to study soon after the age of twelve. Pieces and even the prettiest of my exercises had a picture woven into their music. So it seems that the very simple images which I formed when young helped to increase my powers of imagination as I grew older.

I used to dream of being a wonderful violinist, piano-player, singer, reader, and master of almost all the careers I had knowledge of. I also dreamed of traveling all over the world.

Daydreams may be of great advantage if a young person is led to live out some of the ideals they represent. If a girl dreams of doing deeds of mercy, that attitude of mind may become such a part of her that she will inevitably perform such deeds. If a boy dreams of being a hero, he is more than likely to become one. Daydreams are a disadvantage, however, when they get so far away from real life that they have no bearing upon it. When a youngster has the loftiest kind of daydreams but few ideals for everyday life, he is not the easiest person to live with.

Life idealized. There may be daydreaming in some form at almost any time of life, but the typical period for such dreams is from about fourteen to eighteen. Daydreams are less playful and fanciful than the creative imaginings of earlier years. The world of daydreams is not a fairy realm but the real world partly made over according to one's desires. What is represented is not absolutely impossible in the world as it exists, although it may be extremely improbable. In a daydream self always plays a prominent part. Not only his surroundings but the youth's personality is idealized, with some of his powers increased to an extraordinary degree, and he is the center of events which bring to him the greatest pleasure and honor. Daydreams are usually anticipatory rather than reminiscent and are nearly always, to a considerable extent, directed by wishes or desires. Sometimes they have a backward look, as when one represents the brilliant things he might have said or done until he feels as if he had acquitted himself very creditably. The following are typical:

In my daydreams I was either some favorite character in a a book or some person whom I very much admired; I was always the center of attraction. Oftentimes I lived over again experiences which were past and in which I had had an insignificant part, but in the dream I was the chief actor. I was always witty and an excellent talker in my dreams, while in reality I was the opposite.

I used to dream about many things. Often it was about characters in books, whose actions I would go over and often revise to suit myself. Often I would dream of my friends and what I would like them to do. But always I myself would have some part in the actions of the others (and most often it was

the chief part) when I would imagine the others admiring me. I used to dream of myself as a great actress, and I would go over and over the picture of myself in great successes, singing some wonderful song on the stage before an applauding house. Very often after this I would dream I was a master, such as Beethoven, giving a wonderful concert before people who fairly worshiped me. This kind of dreaming was not wholly bad, for it would spur me on to do my practicing regularly and thoughtfully. It was in this way connected with real life. The dreams that did me harm were of the sentimental sort, which had no connection with my real life, only made me extremely sensitive, and made me think I was possessed of some fine temperament above others.

Romantic imagination. Nearly all daydreams are in a sense romantic in character. The most interesting and remarkable things of which the individual knows are represented as entering into his life in various forms. There is much that is commonplace and monotonous in the objects, persons, and events of everyday life, and he finds much pleasure in representing himself as meeting new people, manifesting extraordinary powers, and enjoying all sorts of delightful experiences or the most thrilling adventures. Many of these imaginings are associated with idealized individuals of the opposite sex. Material gained from history and from fiction is drawn upon in creating the ideal life of romance, but the self is nearly always prominent. Novels do not produce these romantic tendencies but minister to them and determine in some degree the form which they take.

Ambition. Daydreams are to some extent prophecies as to the individual's future. This is not necessarily true of the objective events which occur, but it is, to a greater

or less extent, as regards the characteristics ascribed to himself. This is especially true when the youth in his daydreams represents himself as putting forth extreme effort and persevering until success is reached. The kind of success attained in the future may vary considerably from that which is pictured in daydreams, but the *effort* that one imagines himself to put forth is likely to be realized if at the time of such imaginings the youth is actively engaged in achieving athletic, scholastic, or other successes. This is the time when it is of most importance that he shall become acquainted, either in real life or through history, literature, or science, with great personalities.

The following will serve as a typical example of a girl's daydreams:

During this period of daydreams, I was self-conscious to the extent that I always knew, or at least thought I knew, when people were talking about me, and I was never satisfied until I knew what was said and was eager for compliments. If I had a gown, suit, or hat which I thought was becoming to me, I looked for admiration and was disappointed if I did not get it.

I always recited and took part in amateur performances a great deal, and expected compliments afterward. As a matter of fact, performing before people and receiving so many compliments helped to increase my self-consciousness. I used to sit and dream of a day when I would be world-renowned as a poetess. At other times I would picture myself an actress with large audiences before me.

When thirteen years old I had an idea that I could write a book. I wrote two notebooks full of a story entitled "The Peacemakers." I brought my very best friends into a room (after the completion of the book) and told them that they had an authoress for a friend. I read them the story, but somehow or other did not feel great after I read it to them, and ever

after I lost ambition in that direction and no longer dreamed of being an authoress. I used to walk around and think of how I might have done things differently. My greatest dream was of how I could get rich and help the poor. The plans I laid were manifold.

Even to this day I dream. In fact, my mind wanders to such an extent that often when mother asks me for something I have only a vague idea of what she asked and thus bring her something else.

These dreams are advantageous to the extent that they often spur one on to realize them. I am not an actress, for I have higher ambitions; however, I still enjoy being in amateur plays. I am not a poetess, for I have never devoted much time to writing poetry for publication; however, I have written much verse for my own amusement, some sorority poems and songs, papers, and many letters in verse. I am not a great philanthropist yet, but I hope to be some day. Thus I feel that my dreams were not all futile.

There is a possibility of becoming erratic, absent-minded, and sentimental if one dreams too much. For instance, if I had dreamed too much of what I am about to relate I don't suppose it would have produced the best effect. I used to dream of my home, and little ones sitting around after supper, and of how I would play with them and then send them off to bed, and discuss matters for the rest of the evening with my "dear husband."

EXERCISES

The practical significance of the imaginative tendencies may perhaps best be brought out by a debate as to the relative prominence of good or bad results attending extreme activity of the imagination, and a discussion of the best means of diminishing, increasing, or directing imaginative activity through work, play, reading, dramatics, or achievements such as planned by directors of corn clubs, tomato clubs, etc., and by the regulations and activities of the Boy Scouts and Camp Fire Girls.

CHAPTER XIV

EVILS AND DANGERS OF THE IMAGINATION IN CHILDREN

Playful and pleasurable imagination. All good things have possibilities of evil and danger. Misery as well as pleasure may be produced by the imagination. It may also be futile or destructive of mental power or detrimental to the moral nature.

In physical and mental health imagination contributes to the fullness of life and is more concerned with pleasurable experiences and constructive effort than with disagreeable images and vain imaginings. The same instinct which impels one to diminish or avoid pain causes one to cherish pleasurable rather than painful images.

This is especially true of the playful use of the imagination, examples of which have already been given in preceding chapters. This unrestrained play of the imagination may, of course, have unfortunate results when it is carried to excess. Not only may it take the place of useful, well-directed effort, which would in some cases be more valuable, but it may result in a state of mind which makes it impossible to direct the imagination to useful ends or to prevent imaginative activity from being so confused with realities that discernment of truth is difficult or impossible.

This playful activity may take peculiar forms and is associated with the desire to seek a variety of emotional

life by having in a more or less intense form many kinds of experiences, painful as well as pleasurable. This tendency makes tragedy as well as comedy interesting and even enjoyable. Many things may more safely be experienced in imagination than in reality, but there are dangers. Imagination begun in a semiplayful way may become serious, as when a little girl who had heard of the sickness of an aunt began repeating in a rhythmic way to her dolly as she rocked, "Auntie is sick and maybe she will die," in a sadder and sadder tone until she burst into tears and could not easily be pacified.

The sentimentalist is one who dwells in the world of imaginative emotion without being stimulated to effective action in dealing with realities. Some representation of emotional states in childhood, not too intense or prolonged, may be advantageous rather than harmful, but there is always the danger that it may be carried too far and become a permanent condition, instead of a passing phase of development in which this flowering of the emotional life is followed by the fruits of solid character and well-directed effort.

Evils are almost sure to result from imaginative activity when the self is made too prominent, especially in connection with representations of the pathetic with oneself as the subject. Sometimes children revel in imaginative representations of their own suffering and death. This more frequently occurs after punishment or reproof. Such direction of imagination may arouse a good deal of self-pity and become injurious, as in the following:

Between the years of eleven and twelve I grew rather morbid. My thoughts dwelt a great deal on death. Everyone was mistreating me, and death would be a relief. Often I would have

an entire death scene. I imagined myself dying, then lying in the coffin, but before I could imagine myself in the cold grave, tears of self-pity would be streaming, and I would run to mother, saying, "I don't want to die."

Evil results may also follow the half-playful exploration by the imagination of the possible human emotions, when any one kind of mental picturing is given too much prominence and reality by association with some fundamental instinct. In childhood the danger of injury through fear is much greater for the imaginative child than for others. The pleasant thrill of fear produced by playful use of the imagination may be gradually transformed into a paralyzing horror or morbid picturing of dangers that are not imminent and that would have little influence upon a less imaginative child. One girl often suffered at night from fear of bears, though she greatly enjoyed in the daytime a modified game of hide and seek in which the bear was "It," and great ingenuity was exercised in escaping him. On the other hand, playful imagination may counteract fear, as in the case of a little girl who employed her playful imagination in making up stories to such an extent that she could go on errands in the dark without fear.

In adolescence the sex instinct is a serious source of danger to the imaginative child if his imagination gets started along wrong lines. On the other hand, the same instinct may be a powerful stimulus to the founding of moral and religious ideals, to artistic and intellectual productions, and to ambition in various forms.

Serious or purposeful imagination. When engaging in any new form of motor process, such as gymnastic movements or in manual work, the motions are often rehearsed

in imagination before they are made. In solving puzzles or working out plans or problems the imagination is often occupied with preliminary representations of what the process is to be. These preliminary sketches of procedure are made quickly and with pleasure when they seem to promise a satisfactory performance or solution. If, however, no adequate representation of means and results can be made, there is a baffled feeling which is decidedly disagreeable. It may even become horrible if one is impressed with the seriousness of a situation, as when danger seems imminent enough to demand that something be done at once. The most universal excitants of fear are sudden strong stimuli and things that are strange, unusual, or mysterious. The first demands instant action, but favors wild imaging rather than the orderly working out of a suitable plan ; the second projects one into a little-known field, where dangers continue to threaten, but no way out is seen. Just as a pursued animal rushes hither and thither, so the mind pictures one terror after another and finds no means of gaining freedom. Indefiniteness is stimulating to the imagination, and when mystery arouses fear there is an almost irresistible tendency to go on picturing the desperate situation from which there is no apparent escape.

This is especially true when a child begins to think of something disturbing when alone in the dark. One phantom danger after another appears, with no way of meeting it suggested and with no real objects visible to divert the attention. This may continue until a scream of terror brings someone, and a light shows what is really present in the room. So vivid, however, have these mental creations become that they are scarcely dispelled by the sight

of familiar objects and the sound of reassuring words. In other instances there are no definite images of a particular form of danger, but a continued feeling of insecurity which the individual has no means of combating. For example, a child of four who had associated Germany with the terrors of war, when there was talk of a possible war with that country, wanted to sleep with her mother lest Germany come and get her in the night.

The first time that a certain kind of fear is felt, it is often possible to give relief by showing that there is no real danger. In nearly all instances, however, in which fear has been intense or has persisted for some time it is not usually possible to relieve the mental tension by showing that there is nothing to be afraid of. Even though the reason is convinced, the imagination will continue to produce disturbing images and the muscles to give the fear reactions whenever the circumstance recurs. It is usually much more effective to suggest a way of meeting the danger than to continue to dwell on the fact that there is no occasion for fear. The assurance that an older person will protect a child is often sufficient. In one case a child who was afraid to go on an errand in the dark was told to think of her father as being with her as she walked along, and by keeping his image in mind she went without being frightened. This idea of a companion as a means of safety may be effective, even when the companion is younger and more helpless than oneself. For example, a girl of ten was not afraid to go into a dark room if a two-year-old brother went with her.

Sometimes terror is transformed into pleasure by an imaginary solution of the difficulty, as when a boy pictures the woods as filled with bears, lions, Indians, etc.,

which he is able to slay by pointing his stick gun at them. Many superstitions represent imaginative means of meeting or avoiding dangers which have come to be accepted as reliable. If believed in, these are just as effective in quieting unpleasant activity of the imagination as are scientifically formulated rules of safety.

Indeed, scientific directions for avoiding danger which are not surely effective may prove of little or no value in allaying fear. For example, a teacher who explained some of the ways of decreasing the probability of being struck by lightning succeeded only in exciting a terror of it that had never before been experienced. One girl of ten suffered for more than a year from such fears, although taking the precautions suggested by keeping her head at night as far as possible from the head of the bed, which was of iron. She had in some way got the idea that lightning entered the ears, so it did not matter that her feet were near the iron footboard. The precautions were, however, of small service in allaying her fears, because the remedy was not believed to be infallible.

There are many instances showing that "a little knowledge is a dangerous thing" as far as peace of mind is concerned. Acquaintance with the dangers due to germs produces in some people more imaginative terror of disease than is allayed by many well-founded directions as to how to avoid infection. The danger seems imminent, and the safeguards not sure; hence many persons are in deadly terror of germs though continually taking precautions against them.

Some minds are filled with forebodings, and trivial incidents, as in the following case, may be woefully exaggerated or distorted.

Once at the age of sixteen, when in poor health, I kissed my mother good night; she allowed me to kiss her, but did not return the kiss. I went upstairs and thought about it. The more I thought of it the worse pranks my imagination played on me. I saw myself a good-for-nothing, unable to accomplish a single thing well. I saw myself in later life in ragged clothes, with wrinkled face, worth nothing to myself or the world. When father and mother came upstairs a little after midnight they found me crying, and for a couple of hours they stayed with me, trying to comfort me.

The accumulating results of imaginative terrors are well illustrated by the following:

When I was a child about five years of age I was sent to bed unusually early one evening, and because it was not my regular bedtime I was not sleepy. I lay several hours with eyes wide open. At first there was no thought of fear, then, slowly, strange, fearful objects took shape in the room. Too frightened to call I lay there in nervous terror till late at night and was still awake when my older sister came into the room. The next night I was sent to bed at the regular hour, but could not sleep and again became frightened. This continued for several nights, until finally I refused to go to bed alone unless some one of the family promised to sleep with me. No one could understand it, because I had never been afraid and had never been willfully frightened by anyone. I cannot remember that I was afraid of any particular thing, such as "bears" or "bogy men"; indeed, it was not long till there was no actual physical fear, yet I had a horror of being in the room alone or sleeping with anyone who was not of our own family. During the day I would promise myself and my mother I would be brave, but when evening came would become almost ill with nervous dread, and often could not eat the evening meal. I cannot remember exactly how the trouble was overcome. However, the memory of it is very vivid, for my childish suffering was intense.

A year or so later I went through much the same thing, beginning to imagine things at night, because I did not have the courage to tell my mother of something wrong I had done, and it did not leave me until I finally told her.

When I was about eleven my mother was very ill, and I overheard someone saying she might not live. That chance remark set my imagination to working overtime again. I became nervous and frightened, could not sleep that night, and for a long time, when evening came on, I would often be almost ill with dread of a something I could not explain. I could hardly be persuaded to be out of sight of my mother, after coming home from school.

The last trouble I had with this peculiar fear and nervousness was at about the age of twelve, when I was away from home and homesick. During the day I was happy, but at night the old trouble came back; and even now, if anything disturbs me, I am inclined to become panicky at night.

Imagination in relation to lying. In early childhood the imaginative life rivals the real, in its vividness and interest, and the child often feels no need to distinguish between the two. An imaginative child often relates the events of his mental life as if they were real. This is in no way abnormal or objectionable in its beginning, but if the desirability of distinguishing between the two kinds of events is not brought home to the child, and he continues to confuse and substitute one for the other, the conditions become abnormal in that the power of the mind to know the truth, so as to deal successfully with realities, is lessened. This danger is not so great when the imagination is used playfully and for the immediate pleasure of the moment. If such imagination is associated with action, the power to discern the truth is strengthened rather than weakened. The child who sometimes deals

with real objects and persons and sometimes with imaginary can scarcely avoid being impressed with the difference between them. The imaginary are under his control, as the real are not, and this alone impresses him with the difference between the two and makes it almost certain that he will not be easily deluded, in more serious situations, into believing what he wants to believe rather than facing facts as they are.

The most serious danger from accepting as true only what is pleasing is in the case of children who have not engaged in imaginative play at all or, having done so, have not had much to do with real things and persons. They are much more likely to accept as true the representations that please them.

The strength of this tendency is shown not only in playful imaging but also in all testimony of children and adults regarding exciting events in which they have had a part, especially if it be a quarrel. Few persons can entirely resist this tendency. Each presents the facts that are most favorable to himself, with some additions, and deceives himself as well as others as to the exact circumstances involved. Vivid images as to what might have been done may also deceive one into believing that what was imaged really occurred.

If there is a definite reason for wishing to deceive, the telling of what has been imaged as if it were real may tend to confirm the individual in his half belief that his images do represent realities. The selfish and self-righteous individual is thus notoriously inclined not only to deceive others but also to become self-deceived.

In the case of able and imaginative persons the selfish lie may, on the other hand, be clearly distinguished as

false, and much dramatic and imaginative ability may be shown in deceiving others, but with full consciousness that the truth is otherwise. Such lying, however objectionable morally, is not psychologically abnormal. On the contrary, it quickens the intelligence to invent something that will seem plausible and the falsity of which will not be easily detected. It also involves care in remembering what has been previously told, so as to avoid contradiction and discovery. If such an individual keeps his fabrications within bounds and remembers them so as to keep them consistent, he may succeed for a long time in deceiving others to his own advantage without in any way weakening his mental powers. If, however, he so delights in his clever inventions that he lies when the truth would better serve his purposes, and cannot remember what he has previously told, his mental powers are likely to be somewhat decreased, and thus his imagination becomes abnormal, since it acts in opposition to his self-interest and to the efficiency of his intellectual processes.

Children frequently become adepts in manufacturing stories explaining why they have not done what was expected of them. If they can thus retain favor, this method of meeting situations by excuses and lies, instead of by honest effort in doing the thing required, is continued and improved upon. Sooner or later, however, they fail to convince and are driven to excessive and often abnormal lying.

Lying is the almost universal means of protection and safety resorted to by those who are weak and helpless and by those who by negligence, dishonesty, or other wrongdoing have got themselves into difficulties. Lying, to the imaginative individual, is the easiest way of temporarily meeting the situation. Individuals out of harmony

with their environment and in a state of mental conflict may lie when confronted by each new situation, just as spontaneously and with as little discrimination as one person jumps or screams when frightened, or another, when angered, flies into a tantrum or scolds vociferously. The fabrications may do no more good than the emotional expressions. They are merely an active but ineffective response to a disturbing situation. Such an individual often lies glibly and voluminously, although he knows that he will be detected and his interests will be harmed rather than helped by his stories.

In some individuals the tendency to this abnormal use of the imagination is greatly increased by desire for notice and notoriety. This is often shown by persons who make false charges of assault against prominent persons, or report that they have witnessed a murder, or, in some cases, accuse themselves of murder or other crimes. In this way they secure the public notice that more efficient individuals get through notable achievements. When such a course is continued, though it is clear that it is against self-interest, the lying is abnormal, yet is often practiced by persons who do not seem to be really insane or feeble-minded.

Mental conflict as cause of wrongdoing. Sometimes disturbing questions concerning instinctive tendencies are the occasion of abnormal activity of the imagination; as when a girl relates a long story of her immoralities, although she has really been strictly chaste in her conduct. In this case false imagings take the place of wrong actions without any real solution of life's problems being found.

In other cases mental conflict caused by consciousness of wrongdoing associated with instinctive tendencies,

of oneself or others, gives rise to wrong actions of an entirely different type, in which images play a considerable part. Dr. Healey reports a case of this kind that would usually be regarded as one of typical kleptomania. A girl, who after careful observation and testing was found to be intelligent and normal in other respects, stole repeatedly, often things that were of no use to her. She could give no reason why she did so. Inquiry, however, revealed the fact that the impulse to steal was associated with certain disturbing thoughts or images. It was found that when eight or nine years old, during a summer vacation, she had formed the acquaintance of an older girl who stole and who also talked of her relations with boys. The little girl was stirred by these partially understood ideas of wrongdoing. She was a modest child and showed no tendency whatever to sex immorality, which she thought must be very bad, but whenever she thought of the older girl and what she did and said, she had the impulse to the less serious form of wrongdoing, that of stealing. When the mysteries of sex were explained to her the disturbing thoughts ceased, and she no longer had the previously unaccountable impulse to steal.

Dr. Healey gives several other instances of stealing and irregularity of conduct growing out of mental conflicts connected with sex. A boy of nine was told of sex matters by companions, thus producing a mental conflict that resulted in stealing. In the case of an older boy the sight of a young woman who had made love to him caused him to become restless and dissatisfied. Presently he left his delivery team and went off and spent thirty-five dollars of his employers' money. He worked three months to pay it back. He was not sexually immoral,

but frequently stole when certain images came to his mind. This may be contrasted with the many instances when the thought of a lover stimulates to noble action and high achievement.

Another boy of ten stole and told lies as a result of mental conflict produced by images of bad words he had heard. Any mental conflict, especially that between duty and desire, if not harmonized may thus produce abnormal activity of the imagination.

It seems from these and other cases that imaginative activity associated with an instinctive impulse may remain a disturbing mental influence as long as no satisfactory way of acting or thinking in response to this impulse is found. So long as such a mental conflict continues there are likely to be imagery and action that are contrary to self-interest, or, in other words, the condition is abnormal.

How to guard against the dangers of imagination. It is not to be inferred that all mental conflicts are abnormal. On the contrary, invention, discovery, philosophical theories, and religious beliefs are the healthy outcome of mental conflicts. The abnormal mental conflict is that which leads to hysterical or blind struggling, which only increases the disturbance or diverts the imagination into unnatural channels.

There are two natural correctives of abnormal imaginative activities: one is a great deal of experience in dealing with things, whereby their real nature and the limits of one's power may be discovered; and the other is association with people who are continually demonstrating by actions, and occasionally by words, how situations may be met and problems solved. The child who has plenty of opportunity for play and work and for observing, imitating,

and questioning people is safeguarded against most of the dangers of excessive and perverted imagination, at least so far as his immediate surroundings are concerned.

Injurious activity of the imagination comes from unusual and startling experiences or from objects, forces, or events that have not come within the child's previous experience and of which he can get no satisfactory explanation by observation and questions.

Some of the special excitants of the imagination which are not easily normalized by experience or observation are concerned with death, birth, and religion. The explanation given children by older people sometimes, instead of solving the mystery and suggesting a rational course of action, only increases it and stimulates the imagination to useless and unsatisfying activity.

If a child without preliminary experience and knowledge of the death of plants, animals, and persons is suddenly confronted by a complete change of the family life through the death of one of its members, the shock is often profound. The child frequently suffers terribly and sometimes for years is oppressed by the fear of his own death or of that of some other member of the family. The following is a good illustration:

> One instance of imagination has worked to my detriment even to this day. When I was ten years old I lost my brother and, having seen but little sickness and no death, it left me with such a horror that I was haunted by thoughts of it day and night. Shortly after this a woman living near us, who, I now know, was not quite sane, took a very great dislike to me and did all in her power to make me unhappy. Knowing my great fear of sickness and death, she one day told me that because I was such a naughty little girl the Lord was going to take my

mother away from me, as He had my brother, and that she was going to be ill a long time first. When she told me this, it seemed as though I could not bear it. I would not be away from my mother one instant. I imagined she was getting thinner and paler every day. I became morose and blue and no one could do anything with me. I would dream of it by night and wake up screaming with horror. I had to go to school, but many times the teacher would have to send me home because of my crying. Always I saw my mother sick and dying. It took me many months to become convinced of my foolishness, and the nerve strain which I suffered has its effect on me even to-day.

The death of a playmate is often equally disturbing. If the older people are disinclined to talk about the deceased or about death, the child is further impressed and disturbed by his own attempts to solve the mystery. If, on the other hand, adult companions of the child speak freely of the one who has died, just as of absent persons, and death is explained as being similar to sleep, the strangeness of death is minimized and thus loses its horror. If the idea of permanent sleep in the cold ground is disturbing to the child the assurance that there is no feeling diminishes the terror, and the religious doctrine of a future resurrection is often comforting. The statement that the body only is in the ground and the spirit in heaven is often more confusing than satisfying. One little girl thought of dead people as being still and having their eyes closed, and could not understand how they could play and be happy in that condition as she had been told they were.

Stories of persons buried alive have caused many people lifelong misery, leading sometimes to a decidedly

morbid condition of mind. In the case of one girl of ten the imagery was so vivid that she could almost feel herself suffocating and would put out her hands to see if she could feel the coffin sides. She would then begin to cry and call for her mother.

The phenomena associated with birth are not in their nature depressing and terrifying as are those of death, yet they may become equally strong stimuli to useless and injurious activity of the imagination. Adults have conspired to prevent children from having any true knowledge of the phenomena and have misled and mystified them. Such instances as the following are really pathetic though usually regarded as amusing. A little girl who much desired a baby brother, and had heard some remark leading her to think that people had to get babies by going fishing for them, went day after day to a small stream and fished for a baby until she finally became discouraged. When children who have been kept from knowing the truth and have been intentionally deceived hear a vulgar distortion of the facts from some companion, they are shocked, and the knowledge that such talk is condemned by elders increases the child's interest in such subjects and makes them more fascinating, at the same time giving evil associations to many things that are not naturally connected with wrongdoing. To children whose sex instincts have not awakened, the mere fact that there are mysteries regarded as evil by adults is sufficient to stimulate the imagination along those lines, to the detriment of future morals, and to produce in some instances abnormal mental conflicts.

After the sex instinct develops, the mind which might have been filled with beautiful images, as the bird's throat

with song at the mating season, is much more likely to be occupied with the coarse and debasing images associated with sex that were acquired earlier. When carried to excess this not only results in immorality but directs the mind from more healthful activity and not infrequently results in mental and physical deterioration. In other cases there is a conflict between the higher and the lower ideals of conduct which is more or less abnormal. Comparatively few find a way of harmonizing desires, but instead try to suppress one by the other.

Religious teaching may be a means of stimulating the imagination in such a way as to excite abnormal terrors or so as to solve difficulties and give peace and harmony. The following is a result of a certain kind of so-called religious teaching:

A boy of four had been told that he must not listen to the devil when he whispered in his ear telling him to do naughty things. The devil immediately became very real to the child, and when reproved for doing something naughty he would whirl around and stamp on the floor, trying to crush the devil, who, however, always eluded him and remained at his back.

The doctrine of future punishment has been a source of intense mental suffering to many adults and, in a greater degree, to children. Emphasis upon sin and the presentation of God as a hater and punisher of sin, whose eyes see all things, lead to all sorts of images of punishments that may be inflicted at any time.

On the other hand, the idea of a God who is an all-powerful friend and will protect His children solves most of the problems of life so far as the imagination is concerned.

In order that imagination may be kept in healthful lines the child must feel himself in harmony with the physical world in which he lives, with the people with whom he associates, and with whatever higher Power he is taught exists. When he destroys objects or is bruised or hurt by them, he is irritated and temporarily out of proper relations with them. The feeling of harmony may be restored by showing him how to deal with them so that they are preserved and made to serve his purposes. In a similar way wrongdoing sets him at variance with people and with the higher Power. If he can be taught and induced to act in ways that bring good to himself and others, harmony is restored. The more the experiences of life reveal to a person modes of action that are suitable to the various situations met, the more does he feel at one with the universe in which he lives and with all that it contains. This is the essence of religion. One who is in this attitude of mind has an imagination that works along constructive lines in which abnormal activity is impossible.

All modes of dealing with children which make them continuously conscious of failure rather than of success are unfavorable to a normal development of the imagination. Continual punishment and fear of evils to come also produce undesirable developments. Punishment and fear can bring about good results only when they quickly modifiy conduct and reëstablish harmonious relations.

Literature and imaginative activity. Stories of all kinds are important stimuli to the imagination and may direct it in ways that are invigorating, beautifying, and ennobling in their influence, or they may have the opposite effect. The latter part of the statement holds true

not only for stories admittedly bad but for some that are regarded as classics. The Erl-King in story and music is one of the worst things that can be presented to a sensitive child. The mystery is intense, the danger ever pursuing, and the end unexplained death, from which there was no escape — all calculated to arouse fear and stir the imagination.

The story of Red Riding Hood, if it makes prominent the fate of the grandmother, sometimes causes distress and terror, but if the story is properly told this feature of it is scarcely noticed. To do away with death entirely is absurd, hence there is no occasion to spoil the story by having the wolf become good; on the contrary, his execution is the proper and satisfactory outcome of the situation. Stories for children do not need to be freed from accounts of danger, evil, and death. The essential thing is that there shall be a logical and pleasing ending to the drama. Such stories as the "Babes in the Wood" and, in a less degree, "The Little Match Girl" are objectionable because they present a distressing experience from which there is no relief other than the death of the persons in whom the child is interested. They excite only to sentimentality and useless imagining.

Ghost stories are generally bad, especially when no attempt is made to clear up the mysteries. The only ghost stories that are ever suitable for children are those in which the foolishness of unreasoning fear, as shown by the incidents in the story, is made so evident and the explanation so clear and simple that the whole affair is regarded as an amusing joke.

Fairy stories may be good or bad according as they do or do not furnish satisfactory explanations of the situations

presented. If they emphasize mysterious powers of evil and do not show how they may be overcome or avoided, the child's world, which has enough terrors of its own, has added to it the evils and mysteries of the imaginary. Even the much-lauded " Pilgrim's Progress " is of doubtful value to most children and certainly injurious to a few. The story has the merit of presenting, sooner or later, a satisfactory method of dealing with the terrible situations portrayed, but the fear-inspiring power of the giants often makes a much stronger impression upon the childish mind than do the means of escape. As a fairy story it is of questionable value for children, while the deeper truths it was intended to teach are little understood by them. The following shows the effect upon one child:

I fully believed in giants. To me they were immense creatures much larger than a house. I never thought of them during the day, but at night when I went to bed I was in constant fear that a giant would come along and smash our house down with his huge club. I was greatly relieved when I finally confided in my mother, and she told me that there were no such things as giants. The idea was given me through my father's reading to me out of " Pilgrim's Progress," especially the part where Christian was captured by the Giant Despair and thrown into Doubting Castle.

Some of the writings of Poe and Hawthorne are not suitable for children because of the disturbing and unsolved mysteries that they suggest.

Sorrow and suffering should not be excluded from children's stories; on the contrary, literature is one of the best ways of becoming acquainted with them. For moral reasons, however, evil should not be represented as permanently triumphant, and for healthful mental life, baffling

mysteries should not be featured in children's stories. Troubles may be portrayed, but there should also be revealed a desirable mode of meeting them. In other words, stories are a means of teaching the truths of life and should not present to children evils, sorrows, and mysteries that are not overcome, alleviated, or solved. They may be only helplessly grieved or puzzled, while adults of vigorous mentality, by similar stories, may be stimulated to find a solution of the deeper problems of existence.

EXERCISES

1. Give illustrations of playful imagination becoming painfully real and disagreeable.

2. Give illustrations of serious imaginative activity producing discomfort increasing to terror, or of relief being found.

3. Illustrate how lying may be corrected or may develop and become abnormal.

4. Give illustrations of mental conflicts leading to disturbance of the imagination and to wrong action.

5. Show how imaginative activity associated with death, birth, and religion may be directed into healthful channels.

6. Discuss the suitability of various stories to children from the standpoint of the solutions they offer to the situations they present.

PART III

SCHOOL SUBJECTS AND THE IMAGINATION

CHAPTER XV

USE AND TRAINING OF IMAGINATION IN SCHOOL

Disciplining the imagination. There has been much less said in educational circles about training the imagination than about training the memory or the reasoning. In truth, there probably is more reason for discussing the training of the imagination than of any other power, for it is the one most used in every form of school work during the period of common-school education and one of the most useful all through life.

Perhaps one reason why less has been said is because teachers have felt the hopelessness of the task. Many of them have found the imagination of children so active and so disturbing to their carefully laid plans of teaching and training that they have felt that they had all they could do if they kept it in check while the formal schooling supposed to be necessary was given. On the other hand, some teachers who are themselves imaginative have attempted, often with slight results, to get children to image as they themselves do. Comparatively few have been able successfully to stimulate and direct children's imagination in such a way as to give it effective training.

The effort to train memory and reasoning so that they will function effectively in all lines has been so discouraging that belief in general or formal discipline has rapidly

disappeared. There is reason to think that formal discipline, even if there should be some value in it, has very little application in the training of the imagination.

The most general characteristic of imagination which should be developed is that of increasing the power of voluntarily making the imagined seem real without in any way confusing it with what has been or is being experienced. This and other less general characteristics of this useful faculty may probably be best developed not by special exercises with that end in view but by employing the imagination in a variety of useful ways for pleasure and for the accomplishment of definite tasks. If a person's imagination is used so as to help him do a variety of things more effectively and with greater enjoyment, it will receive better training than by any scheme of formal discipline. The general problem of the training of the imagination, therefore, resolves itself into a number of special problems regarding its practical uses, in all the activities of life, including the enjoyment of physical and mental play.

Stimuli to the imagination. No matter what the task in hand, mental images are usually brought into mind and grouped in such a way as to aid in its accomplishment. A brief discussion of objective stimuli to the imagination is therefore in order.

The stimulus most commonly used, especially in school, is language. As has already been indicated, words play an important part in the early development of the imagination by helping to free images from their associations of a particular time and place so that such images may easily be shifted to new settings. Words continue throughout life to be very useful in bringing images into the mind,

but there is a strong tendency for these images to assume a single typical form and in many instances to become vague, except under special conditions.

Single words do not, therefore, of themselves usually call forth very vivid images. Other words and other influences are necessary, and these often combine to produce a complex picture that may be quite vivid as a whole, although the separate images involved in its construction were not formed in response to single words. The general state of mind, all the words of a sentence, and the trend of thought produced by preceding words contribute to make a vivid complex image.

Another way in which images are made vivid is by uncommon uses of words or unusual arrangements of them. This is why poetic and slang expressions are often so effective in producing vivid images, while more prosy language, where ordinary words are used in the ordinary way, provides little or no stimulus to the imagination.

The art of description consists in using words in such a way as to bring to the mind not only the objects named but that with which they are associated, and in such an order that images once formed do not need to be greatly changed, while additional images, as they appear, harmonize with and supplement them. The common form of the English sentence, in which adjectives precede nouns, arouses vague images of quality which become fused into a more vivid picture when the object to which they are applied is named, while the more usual form of the French sentence favors the habit of imaging in an indefinite way the thing named and then giving it the specific qualities implied by the adjectives that follow. Opinions differ as to which language is best psychologically.

Individual writers in every language vary from the usual, and most readers find it much easier to picture what is described by some writers than by others with a different style. Whatever manner of writing is used, some images must be held in an indefinite form until others are suggested so that the whole scene may be correctly imaged, or there must be disconcerting changes in imagery. If the mind is held in suspense too long before the picture can be completed, the images which have been vaguely formed will have disappeared, and a complete and vivid picture will be impossible.

Children do not naturally hold images in suspense and cannot keep many in mind at once, hence their imagination is best stimulated by short sentences and by the use of only one or two descriptive words or phrases at a time. A succession of short sentences presenting one aspect after another of the object being described may arouse interest and produce very vivid pictures, when a description in one sentence containing several corresponding adjectives would produce no definite imagery.

Another very effective stimulus of the imagination is action. Appropriate movements made by the person giving a description may take the place of words or may supplement and emphasize them, and in this way a much more vivid idea of the scene is produced.

Not only are gestures thus effective in stimulating the imagination but also the attitudes, expressions of face, and tones of voice of the speaker which suggest physical movements. Observing and imaging such physical action tends to produce more or less actual movement of the same kind in the listener and this lends reality to the imaginary scene. This feeling of reality is greatly increased if the

children are permitted to actually perform some of the acts implied in the description. For this reason imagination is most effectively stimulated and directed by dramatic action on the part of the speaker or the hearer or both.

Pictures may also be an effective stimulus, although in many instances showing pictures to children results in a substitution of perception for imagination. If the child sees only what the picture represents, there is not much imaginative stimulus. If, however, the picture is of something the like of which he has never seen, he may study it and seek to imagine how the objects it depicts would really look or act under various circumstances. To a child who has never seen a tiger or an elephant the picture of one may be a strong stimulus inciting him to image how large it really is, what it may be able to do, and how it looks when doing it. On the contrary, if a child is shown pictures of mountains, lakes, houses, trees, and people which do not differ greatly from any which he has previously seen or of which he has seen pictures, his imagination is only slightly stimulated. He may merely observe what is shown and make no attempt to supplement it or to modify it in any way. He may think little of the real size of the objects and may accept the idea that their color is always just as it is represented in the picture. Pictures, therefore, often add to the variety of mental images that may be produced, without increasing the power to construct accurate mental pictures of things described.

Moving pictures showing objects from different points of view or giving a perception of a series of movements produce images much more vivid, more correct, and real; hence they supply valuable material to the mind, but the power to construct complex scenes is not greatly increased,

and probably the tendency to independent construction is decreased by learning in this way rather than through words.

Diagrams and crude models are often more effective stimuli to the imagination than complete pictures. There are no details shown, and the mind must supply them in response to the suggestive lines and symbols of the diagram. The diagram gives an opportunity for such mental constructions, but will not of itself produce them. It sometimes is studied and memorized simply as a diagram with very little picturing of the actual things intended to be suggested by it. This is often the case when maps are extensively used in geography and charts in science or history.

Objects may be a very effective stimulus of the imagination, provided they are used in connection with other means of arousing pictures of things not present with which the object shown has been associated. The scenes of a foreign country may be made much more vivid by showing a single specimen of a plant or an article of clothing which formed a part of a scene being described. Pictures of single objects, such as a tree or a person about whom something is being told, may also stimulate the imagination, but not quite to the same degree as a real object.

Directing the imagination. The factors which have been mentioned so far are chiefly effective in stimulating the formation of images, although with other things they do determine the way in which images shall be combined into unified and connected pictures. Unless, however, there is some thought connected with the mental pictures which arouses expectation as to the outcome, or a purpose that certain results shall follow, the separate images have

little meaning or interest. Even moving pictures which combine several very effective stimuli are frequently meaningless and uninteresting when one has not seen the title and does not understand the progressive changes in the situation.

One method which is very effective in stimulating the imagination, and still more helpful in directing it in the right channels, is to give a sufficient idea of what is coming to excite expectation. Incipient images appropriate to the situation are aroused and some idea of the general setting is formed so that when the proper stimuli of words, gestures, pictures, or diagrams are given, an outline of the desired kind is promptly filled in by appropriate and vivid images.

Another mode of exciting and directing the imagination is to indicate an aim or a purpose to be accomplished; then, as the mind is stimulated by appropriate means to form images of objects and acts involved in accomplishing that purpose, these images arouse others consistent with them, and all arrange themselves in such a way as to lead toward the accomplishment of the purpose that has previously been represented. Successful lesson-planning is that which thus sets clearly before the pupils some end to be accomplished and stimulates their imagination so that the right materials are brought to mind and significant things selected and arranged so as to bring about the results desired.

Mental conditions favoring imagination. The first essential in using the imagination is the possession of the necessary elementary images for constructing and creating in the line desired. One of the chief reasons why children should have varied and extensive sense experiences

in early life is that their minds may be supplied with images which may be used in constructing and creating what is not actually present. For this reason the country child, especially if he has had some nature study, is much better prepared for the study of some of the sciences than the one who has always lived in the city, while the city child knows more about cars, electric lights, elevators, and other modern devices. The teacher should always ask herself before presenting a lesson, "What image material do these children probably have to work with?" She should then plan to use such material as they have and to supply what is lacking. In doing this she should remember that pictures are not in all cases a reliable substitute for the real things. For example, a child in Boston who claimed to know what a cow was, when asked its size said, "It is so long," holding his fingers about an inch apart.

The second essential is that children shall be given sufficient time to make their constructions, and a model or suggestions must be given to direct their imagination. To ask children to make a design or write a story of a certain kind, even though they have the materials with which to work, may not be effective unless they have had or are given some model to direct their creations. To give exercise to the creative imagination, directions must not be complete or the model one that is to be followed literally. For example, the figures in a rug design may be used for the construction of a wall-paper-border design; or an autobiography of a person may be given as a model for writing an autobiography of a penny or a flower about which the child has studied; or a pupil may be asked to write a humorous description of an animal, with

a description of some person as a model, such as is found in Irving's "Ichabod Crane" or in his account of a Dutch governor.

Skill embodied in more or less well-established habits is another essential to the successful use and expression of imaginative activity. A child who has had no experience in using paints and brush is poorly prepared to make a design in color, and one who has not mastered the mechanics of writing and spelling is not ready to write an original story. To the above conditions must be added another before any creative activity worth while will take place; namely, an interest or desire that can best be satisfied by such activity. This interest may be playful or serious, according to the age and individuality of the child and the special circumstances of the case, and may embrace any line of useful human activity; but to be most effective it must be positive. Neither artists nor children do their best work under compulsion, but when trying to accomplish something in which they are deeply interested. If the incentive is strong enough, the individual may be induced to acquire the essentials previously named (namely, a supply of elementary images and manual skill) if he sees that he cannot succeed without them. The older type of teacher sought to supply these essentials for creative activity so that the child would be properly equipped before actually beginning such work; the newer type seeks to arouse desires and stimulate the child to acquire the essentials for realizing them.

The thing attempted should not require so much preparation that interest is lost before the work of creation can begin. To attain success, the desire to be realized must be represented by projects that are not too far in advance

of the child's preparation for accomplishing them. Success by the older method is also secured in a similar way. Just as soon as a child has gained some creative material and acquired some skill in dealing with it he should be given a chance to make use of it. Failure, or, at least, loss of time and energy, comes from too great a separation between learning and its application in the use of the constructive and creative powers in satisfying some desire or need.

EXERCISES

1. Does practice in comparing images that one has constructed with actual perceptions train the imagination? If so, in what way and how much will power of imagery as applied to other things be improved by such practice?

2. Does practice in using the creative imagination in one line increase originality in all lines? Give proofs.

3. Mention some of your successes or failures in trying to stimulate the imagination of children.

4. Prepare several lesson plans with special reference to the imaginative activity involved.

5. Discuss the relative advantages of these two methods: (1) gaining the essential knowledge and skill, then using them in a creative way; (2) undertaking interesting projects and gaining the necessary knowledge while accomplishing what is desired.

CHAPTER XVI

LEARNING TO READ AND SPELL

Imagination involved in learning to read. As already mentioned, words are an important means of developing concrete images. On the other hand, learning to read results in developing visual images of words. In learning visual words and their correspondence with oral words attention is necessarily directed toward imaging symbols rather than things. This tendency is increased artificially by phonic drill and naturally by the attempt to spell and write words. The process of learning to read, write, and spell is to a considerable extent one of learning to form accurate verbal or word images both visual and auditory. A good and rapid listener or reader passes at once from the sensory stimulus of the sound or sight of the word to a representation or interpretation of what it stands for, but in reading aloud and in writing there must be an association or translation from one kind of word symbol to the other, and in this process the images formed usually become dominantly verbal.

Before beginning to learn to read most children know a large number of words, form more or less definite representations of what they stand for, and image in some degree the sounds of words. This is the material that they have when they begin learning a visual language. They must now learn to distinguish the visual forms of words and to associate with them images of the sound of

the words and images of the things indicated. The process of learning to read is therefore a process of learning to form visual images of words and of recalling, in response to this new stimulus, the auditory images and the images of things which are already familiar.

For purposes of silent reading and thought-getting the most important thing necessary is that the visual words shall quickly suggest the images and ideas for which they stand, grouped in accordance with the arrangement of the words in sentences. In oral reading the essential thing is that when the visual forms of words or parts of words are observed, the corresponding sounds shall be quickly imaged in the right order. To be able to read aloud and at the same time get the thought requires that both of these processes shall be carried on together in combination with the proper movements of the eye in seeing the words and of the vocal organs in uttering them. This is a complicated operation, in which several distinct but correlated habits must be formed which tend to supplant the imaging process. One is the habit of moving the eyes along the lines, pausing momentarily, from three to eight times for each line, to recognize words or groups of words. Another is that of moving the vocal organs so as to speak the words that were looked at the instant before. Besides these there are customs of sentence construction and of mental classification that facilitate the reading process. These habits differ considerably in silent and in oral reading, and the methods of teaching may make prominent either those favorable to word-calling or to rapid thought-getting.

Some teachers regard the process of getting thought as the most important, while others lay most emphasis

upon learning to utter the proper sounds at the sight of the visual symbols. The methods of teaching vary in accordance with these differing views.

The thought method. In the thought method the chief purpose from the first is to gain the power of imaging objects and thinking in response to the stimulus of visual words, while a detailed knowledge of the sounds associated with the visual symbols is presupposed or acquired incidentally. This method when properly carried out makes the child's previous knowledge of oral words and of what they stand for, and of the usual arrangement of words in sentences, the apperceptive basis for learning the visual words and getting them properly associated with ideas and verbal sounds. The process is somewhat analogous to that involved in following the thought in a moving-picture story. The title and a few words or sentences start the thought in the right direction, and the pictures show part of the story, while the rest is filled in by the constructive imagination in accordance with what is known of the usual accompaniments in such scenes. In a similar way a child in learning to read may be given an idea of what the sentence is about and told one or two words in the sentence which suggest to him the oral words in which the incident could be expressed, and this prepares him to guess what oral words some of the visual symbols must represent. If the child becomes thoroughly interested in the story and if key words are given him and others added as necessary (not too rapidly or too slowly, but just at the right time after he has seen them, so that his guess as to what they are is confirmed or corrected without breaking the flow of thought and destroying the interest of what is coming), the child will gain rapidly in the power of getting thought

from the printed symbols and of uttering the words that he already knows correspond to that thought. Of course he often thinks of other words having the same meaning instead of the ones in the book, but this is a mistake that may easily be corrected.

Some children become so interested in guessing what the thought is going to be and what the words are that they do not observe closely the visual forms. It is therefore necessary occasionally to call their attention to the likeness or difference of words which they have miscalled as compared with words in previous sentences that they have correctly named. Mistakes may also be guarded against by having familiar words pointed out before the child begins reading another lesson or section of the lesson. It may be well also to give him the names of important words that he is not likely to guess correctly.

When this method is followed, the child is continually using his knowledge of things and incidents similar to those described in the story, his acquaintance with oral words and their arrangement, and his knowledge of visual words which he has recently learned. As learning proceeds, the knowledge of visual words which he has acquired becomes an important element in his apperception, and he does not have to be told so much of the thought before he begins reading nor so many of the words as he reads.

The process in learning to read from this time on is very similar to that by which he had previously learned to talk. After a child has learned a few oral words he hears many sentences containing those words and guesses at the meaning of the strange words with which they are associated. These guesses are confirmed or corrected by the way in which he hears the new words used in other

sentences. The meanings of words are learned in this way in a large proportion of cases.

In the thought method of learning to read, the objects and incidents described should be familiar but interesting, and the words and their arrangement should be such as the child has often heard and used. With such an apperceptive background he will soon learn many visual words. After a considerable vocabulary has been acquired, the words which are familiar to him suggest the thought of the sentence, and the combination of letters in a new word is suggestive of its sound. Thus the child quickly adds new words to both his oral and his visual vocabulary.

At this stage it may be necessary, however, to lead the child to observe more closely the various combinations of letters and to associate them more accurately with the sounds for which they stand. This will help him to pronounce correctly the new words that he meets and prepare the way for learning to spell.

The symbol or phonic method. When word naming is regarded as the important thing in the early processes of learning to read, the attempt is made to get the child to image not so much the thing for which the word stands as the visual form of the word or the letters composing it and the sounds corresponding to them. The child is frequently shown words or letter combinations and given the corresponding sounds. He also sounds words and then they are written for him. The same process is repeated over and over with letters and with common combinations of letters until the child readily images one kind of symbol when he sees or hears the other. Words rather than sentences are studied, and words are separated into parts, and parts are built up into complete words.

After a considerable period of time the child has sufficient apperceptive knowledge of the correspondence between the two kinds of symbols to be able to guess or infer fairly well the sounds corresponding to the visual symbols of new words, or, in other words, to read in the sense of calling words. This knowledge enables him to guess or infer what combinations of letters must be used in a new word. This method, instead of using as an apperceptive basis thought and symbol images already familiar to the child when he enters school, seeks to build up a new set of images of visual symbols and to get them associated so closely with sounds that they will at once suggest the words. By such a method the child may acquire more or less facility in naming words, both familiar and unfamiliar, which he sees and in spelling those that he hears. Even with the best of teaching, however, he is likely to make mistakes with new words, partly because the English language is not a phonetic one, and the usual is the correct in scarcely three fourths of the cases he meets, and partly because there is no means of knowing how new words are accented unless they are marked in accordance with symbols with which he has been made familiar.

After the child has attained some facility in recognizing words from his knowledge of letter combinations he may be led to think of what the word stands for as well as its sound and then to read in the sense of getting thought from the printed page. If the drill upon symbols has continued for some time there will be a certain amount of difficulty in getting him to image objects and events instead of symbols and in getting him to speak the sentence which he sees instead of merely naming the

words of which it is composed. The phonic method strictly carried out from the first makes no use of apperceptive thought material or of knowledge of oral symbols, but seeks to build up an apperceptive mass of visual symbols to be associated with oral ones. Such a method is wasteful of time and energy, and it also forms the habit of giving attention to symbols which later interferes with the more important thought processes involved in reading.

In the methods of teaching reading now in most common use the thought method and the phonic method are usually combined, with one or the other preceding and dominating. In the best methods thought is chiefly prominent, while symbol learning and imaging are incidental.

Learning to spell. It must be admitted that the phonic method of learning to read, whatever its wastefulness and disadvantages for that purpose, is a pretty good preparation for learning to spell. One who has been well trained in phonics can guess or infer in a large percentage of cases the letter combinations used in spelling new words, but there will still remain a considerable number of words whose spelling is contrary to all the teachings of phonics, and to which any one of two or more rules regarding letter combinations might apply with no clue as to the correct one. All of the advantages which phonics can give may be gained in a fairly short time after a child has learned to read by giving him a comparatively small amount of drill in phonics in connection with learning to spell and in pronouncing new words. In learning to read by the thought method he has incidentally associated a great many letters and their combinations with the appropriate sounds, and it requires only a little detailed study

to make this knowledge accurate enough to be of considerable assistance to him in spelling and in the use of the dictionary.

In addition to this it must be recognized that spelling is not necessarily dependent in any degree upon a knowledge of phonics. A child who has learned to read is able to form more or less clear visual images of the words that are familiar to him. If these images are made sufficiently specific, he may spell correctly without any knowledge of phonics. In the case of most people at the present time visual images doubtless play a larger part in the process of recalling the spelling of words than any other form of imagery. This is especially true of those who do a great deal of reading. They see many words so frequently that they form images of them and can tell how they are spelled without ever having made any effort to learn. Sometimes this image is not perfect enough to enable a person to spell a word with assurance, but after the word is written he can compare it with his image and tell whether it is correct or not. A large proportion of people would doubtless become fairly good spellers without any training other than that involved incidentally in reading and writing.

There are some, however, who do not learn how to spell in this way. They do not observe words in detail, but note only the general form which suggests the thought. Such persons must have their attention called to the exact letters and their order in words to enable them to learn to spell. If they have a natural tendency towards specific auditory imagery, phonic drill may be of great assistance. If, however, their imagery is dominantly visual, but lacking in detail, they may be helped most by teaching them

to give close attention to the parts of words and by giving them a great deal of practice in comparing their perceptions of words with their visual images of them.

It is often of advantage to associate this exercise with practice in writing the words. One or more words may be placed before the child for observation, then they may be covered or erased while he images how they looked and then writes them. What he has written should then be compared with the visual copy to see if it is correct. For small children, whose attention is more or less taken up by the process of writing, the words must be short or their images cannot be held in mind until they are written. In all copying that children do they should be encouraged to look at what they are copying less and less often and hence to carry in their minds images not only of longer words but of several words at a time. Separate printed letters that can be made into words by children who are not able to handle a pencil may be helpful to them. No device of this kind, however, is equal to a typewriter as a means of learning to spell, but as yet it is not feasible to have these machines for use by primary pupils. Learning to spell is distinctly a process of learning to form auditory, visual, or kinæsthetic images, although in the latter case especially one may spell by habit without distinctly imaging the separate letters before writing or uttering them. Each teacher should experiment with her pupils, having them use different methods of studying their spelling, employing sight, sound, or movement processes, and helping them to discover which mode of studying and imaging words is best for each one.

EXERCISES

1. Cover the page from which a rapid reader is reading aloud and notice how many words he can utter afterwards. This will show how far his eyes are ahead of the movements of his vocal organs.

2. Observe the eyes of a reader, either directly or with the aid of a hand mirror, as you sit beside him and count the number of pauses per line. Do this for persons of varying age and rates of reading and compare the number of pauses per line with the number of words read per second or minute.

3. Study different individuals as to their reading rate and habits of reading and their ability to get thought by silent or oral reading.

4. Summarize the advantages and disadvantages of making phonics prominent in teaching reading and of making thought prominent.

5. Discuss the various methods of learning to spell and their relation to imagery in the case of special individuals.

CHAPTER XVII

IMAGINATION IN DRAWING AND CONSTRUCTING

Images and drawing. Without entering into details regarding the various kinds of images which may or may not be concerned in directing the movements of the hand in drawing, it may be said that one usually holds in mind some sort of image of how the model looks. A few persons may draw very simple forms without having vivid images, simply making the lines which are necessary without picturing how they are to look. In the majority of cases, however, the person who can draw well, especially from memory, is able to image not only the general appearance of objects but their details.

Experiments show that there are various ways in which memory in connection with drawing is developed. A very common plan is to look at the object and then glance away, or close the eyes and try to picture its appearance in detail. In drawing from a model this method is followed to some extent, parts of the object being observed, then imaged while they are being drawn. Another way is to look at an object and make in imagination the movements that will be necessary in order to draw it. A third method is to observe the object, noting its resemblance to some familiar or standard form and also some of its special peculiarities or variations from the usual, drawing it later from these memories or associations. For example, the object as a whole looks like a tree, a house, a

hatchet, or a geometrical figure with a certain number of angles or curves, and it is thus recalled and reproduced chiefly by means of verbal associations.

The first two methods seem to be more effective if the drawing is executed immediately, but the images are likely to fade, and there is no means of making them vivid or of recalling the necessary details, while the third method makes recall more sure and certain. A combination of all three methods may sometimes best be employed.

Models and images. Some persons in drawing observe the model very frequently and reproduce its details without variation. Others observe the general appearance of what is to be drawn and then reproduce its essential features, perhaps with intentional modifications.

When children first begin drawing they usually glance at the object and quickly represent something of the same type. If not required to do so, they do not observe the object for any length of time, and they represent the species or class to which it belongs rather than the individual specimen before them.

This is also the method followed with some modifications by some skilled artists, especially the Japanese. A Japanese artist who wishes to draw a bird, for example, may spend many days in observing its form, attitude, and movements and selecting the appearance that to him is most satisfactory. Then, without any model before him, he draws the picture with rapid, sure strokes. This method of drawing results in free, graceful lines, unified and harmonized, while the drawings from a model, though more exact, are likely to be stiff and less artistic as a whole.

In teaching children to draw it is probably better from the first to encourage drawing from the images in mind.

They do need, however, a good deal of practice in seeing essential details as well as general appearance. This may be accomplished by having them observe one or more features of an object until these are clearly imaged and then having them draw those features before they again look at the object. The number of things to be observed may be gradually increased until objects that are not too complex may be correctly drawn without reëxamination.

In the case of complex objects, especially landscapes, the constructive and creative imagination as well as the reproductive may be used. Whatever serves as a model is not copied in all its details, but parts of it are combined with images derived from other sources so as to make a more beautiful picture in which certain features of the scene or object are so prominent that an observer of the picture cannot fail to see them, although he might not have noticed them in the original.

Constructing and imaging. In making boxes, portfolios, toys, tools, and machines the imagination usually plays an important part. It is not infrequently the case that persons who are very deficient in understanding and expressing ideas by means of words are unusually skillful not only in their movements but in understanding and planning constructions of various kinds. In some instances, at least, this is due to a considerable extent to the fact that they have a strong tendency to think not in words but in images, especially those involving space relations.

Some individuals of this type are able to hold an image of an object in mind and see it from any angle that they choose and note just how each part is related to every other part. They can mentally select and arrange the materials for a box, a bird house, a trap, a dress, or a hat,

and the parts will fit just as they had anticipated. Other persons gain a general idea from the drawing or description or from their own planning of how the objects will appear, but the image is so lacking in detail that when they attempt to put the parts together they do not get the results they had anticipated. It is of great advantage to be able to form clear and detailed images of what is to be constructed, although that power is not absolutely necessary to success. If the general image of the object to be made is supplemented by the memorizing of symbols describing the necessary details, the results may be even more accurate than when images are relied upon.

Designing and inventing. Images are very convenient in designing and inventing, although they are not absolutely essential. Many persons do not attempt to image a whole design in detail, but mentally represent and execute a part at a time, while holding in mind a general idea of the whole. In a large proportion of cases not even this much imaging is attempted, but trial arrangements of real objects or lines are used instead of the corresponding mental representation. Those arrangements which seem to harmonize best with the general image of what is to be made are then chosen, and the design or the mechanism is worked out far enough to show how it is going to look or whether it will be successful. Many trial constructions may be made before the design is completed or the mechanism finished.

Very few people are able to image a whole new creation in detail before they construct any part of it. Instead, they image to some extent, then construct enough to see what the results are going to be, then image variations or additions.

IMAGINATION IN DRAWING AND CONSTRUCTING

Artistic designing requires much the same kind of imagination as invention, except that ideals of the beautiful play a larger part in designing, while a knowledge of the nature of the materials to be employed and of the forces involved is absolutely essential in inventing. In both cases one must have had previous experience, giving a knowledge of the use of materials and of plans that may be followed; and then there must be an ideal to be realized or an end to be gained which directs the specific arrangement of materials so that the new combination will be beautiful or useful.

The successful designer or inventor must not follow familiar methods too closely, but, on the other hand, if he varies too much from all accepted models there are many chances to one that he will produce the bizarre rather than the beautiful or the useful.

Originality in designing is fostered by a limited amount of exact copying from good models of various kinds and by a good deal of practice in using the elements of such designs modified and combined in a variety of ways for different purposes, artistic and useful.

EXERCISES

1. Have several children or older persons study some unfamiliar figure before them in any way that they choose for two minutes without drawing it. At the end of that time ask them to draw it from memory. Observe and inquire as to the methods used by different individuals and their success. A week later ask them again to draw the figure from memory and to tell whether they remembered chiefly by an image of the figure or by words and associations.

2. Discuss the comparative advantage of teaching pupils to draw from a model and from memory. When and to what extent should each method be used?

3. The ability to image constructively and in detail may be tested by asking pupils to figure out how much material will be needed to construct a paper or a wooden box of a certain size or to describe the design that will result from certain cuts in a folded paper.

4. Get reports from various persons as to how far they are able to plan constructions in the absence of the materials to be used; or ask several persons to plan a rug border, using rectangles of two sizes and two colors without the rectangles or anything to represent them. Then let them try it using written words, then drawings, then the rectangles themselves. Note the rapidity and success attending each method.

CHAPTER XVIII

IMAGINATION IN ARITHMETIC

From concrete things to symbols. The child's early ideas of number are based on perceptions and images of objects. More or less of similar things may mean to the child merely greater or less space covered by those things. In the case of objects which are not exactly alike, the child has an image of how each one looks and thus knows whether all are present. When he is first being taught to count objects, he is often inclined to regard the number names as the specific names of the objects. For example, if the fingers are counted beginning with the little finger, the child may be inclined to insist that the little finger shall always be called one.

After numbers have been used a great deal in indicating the size of groups of objects, the child begins to think of groups of different sizes, not wholly by means of images of the objects but by means of the number symbol indicating the size of the group. When he first notes the result of combining groups or taking objects away from groups (for instance, putting two and one together or taking one away from three), he is likely to image the objects and the change produced by adding to or taking away from the group. In counting a series of sounds there is more or less imaging of the sounds, and in such counting, as in counting visual objects, sensations and images of movement play a large part. The child points to each object when counting a visible group, and the result will

be correct only when the pointing and the utterance of the number symbol correspond with each other and with the movements of the eyes as he fixates one object after another.

The number symbols which the child uses and images before going to school are auditory in character, and all of his number thinking which is not in the form of concrete images involves auditory motor images of number symbols. Two and one bring to his mind the image of three as heard or spoken, because that has so often followed the others. Before going to school the number thinking of many children is largely in terms of auditory motor images, and they are able to compute to some extent with abstract numbers.

From auditory to visual images. Formerly all the child's number training for several years of schooling was carried on in auditory symbols, and only after becoming familiar with a great many number combinations and all the common operations of arithmetic, and having had considerable practice in solving mentally problems involving small numbers, was he expected to begin using visual symbols. Then he worked problems similar to those he had previously solved, except that the numbers were larger and could more easily be handled by means of the slightly differing processes of written arithmetic.

In modern schools written symbols are used almost as soon as the child begins work in number. This makes it necessary that he shall learn the visual mathematical language at the same time that he is learning number combinations and the processes by which calculations are made. The process of learning the visual language of arithmetic and that of learning the number facts and

mathematical relations are often confused not only in the child's mind but also in that of his teacher. The child may know the facts and how to calculate the results, but not be able to indicate the process accurately in visual symbols. The teacher, in attempting to help the child, frequently fails to realize where the difficulty lies and adds to his perplexity by trying to explain to him what he already knows, in just those terms which are the source of his difficulty.

Recently the methods used in primary number work have changed, so that to a great extent the child learns the visual symbols of arithmetic from association with concrete objects rather than by a direct translation from auditory to visual symbols. Two groups of objects are added to make a larger group, then the symbols $2+2=4$ are written as the arithmetical way of indicating what has been done. Such learning of the visual language of arithmetic from direct experience with concrete objects gives a much more complete knowledge of the significance of the visual symbols. The child may at any time substitute for the symbols an image of the objects and of what was done with them.

Because of this the situation is now much better than it was when written work was first introduced into the primary grades, but there is still some ground for questioning whether the child's mathematical thinking would not be clearer if it were carried on by means of the familiar auditory motor symbols until he becomes acquainted with all the fundamental facts and processes, before beginning to use the visual language of arithmetic and the written methods of calculating, which are of advantage only in dealing with large numbers.

However this may be, inquiry reveals the fact that a large proportion of those who have gone through the grades make much use of visual symbols of numbers and operations. If asked to perform an operation such as "fifteen times twenty," nearly all will image the numbers with the line drawn beneath and the results written below. So fixed are these number forms that children often think it would be impossible to perform the operation of subtraction with the smaller number at the top, or the operation of division with the position of the divisor and the quotient interchanged. Some go farther than this and visually image all numbers as arranged in a certain way, such as in a line running up or down or sideways and changing its direction at tens or hundreds, or they may be arranged in circles or in very complex forms. With some persons such number forms seem to be helpful in making combinations, while with others they are of no use.

The tendency to carry on mathematical calculations in terms of symbols often becomes so strong that the pupil does not image the concrete even in situations when it is really necessary to correct thinking. Children who have been adding numbers, when asked, "What are three apples and four oranges?" are likely to say "Seven," without thinking of the concrete reality but only of the symbol relations. The practice of giving many concrete problems to be solved rapidly naturally increases rather than decreases this tendency. The child who stops to image the objects in their proper relation will be the last one to get the answer, while the one who does no imaging, but thinks only of the symbol relations suggested by the words, will be the first. A slight change in the order of the words in stating a problem will often lead rapid workers to

perform the wrong operation. Sometimes it is difficult for children to image the concrete situation and correct the error into which they had been led by thinking in symbols only. To avoid this difficulty it is well to encourage deliberate and accurate work when concrete problems are given, leaving the rapid calculation for drill exercises with abstract numbers.

Measurement and imaging. Problems involving measurement are also a good corrective for the tendency to the exclusive use of symbols in mathematical calculations. When measurements were introduced late in the course, as was formerly the case, children nearly always had a great deal of difficulty because they had learned to think in symbols only, whereas correct thinking in mensuration is possible only when the concrete facts are considered.

At the present time a large proportion of high-school graduates, when asked to tell how much lumber will be required to make a box four feet square, will begin to calculate with symbols, without imaging the concrete problem or asking whether the measurement given is outside or inside measurement, and without inquiring the thickness of the lumber. Even if they are told in the problem that the measurement is for the outside dimensions and that the lumber is two inches thick, many of them will not allow for that thickness in computing the length of boards required, according to the kind of joint that is to be made. For similar reasons many of them will fail in computing how many feet of picture molding will be required to frame a picture on a mat that is twelve by eighteen inches. They will perhaps not even realize at first that it is necessary to know the width of the molding in order to solve the problem. It is true that they may be taught

a formula such as, "The number of inches of molding required will be equal to the perimeter of the mat plus eight times the width of the molding," and in accordance with this formula may work problems involved in picture-framing, but this will not help them in solving other problems of mensuration.

If, however, in the study of mensuration they have first solved the problem by manipulating objects, then by imaging how the objects will be related to each other, and finally have used a derived formula which will apply to all such cases, they are likely to retain the ability to use images whenever necessary. Hence, when a new problem in mensuration is given for which they have no formula, they will at once begin to image the concrete situation or to represent it by objects or lines, and then will work the problem correctly and perhaps be able to derive a formula by which all such problems may be quickly solved. For the above reasons it is of advantage to have problems of mensuration early introduced into the course as a natural corrective to the tendency to think more or less vaguely in terms of symbols only and to use formulas without retaining the ability to represent concretely the situation and processes which they indicate.

It is probably because of the fact that so much of the practice work in arithmetic is concerned with the manipulation of symbols according to rule that children in schools where a large amount of time is devoted to arithmetic do no better than those who spend a much shorter time upon that subject. This may also be the reason why some graduates of the schools can do nothing without pencil and paper and even with them may be unable to solve little practical problems of a type new to them, which

may be readily solved mentally by persons who have had a small amount of schooling.

Computing and imaging. Before the child knows the exact significance of numbers he usually learns something of their relative meaning. He knows that twenty is a great deal more than three, and a hundred is more than twenty, while a thousand or a million mean a very great many. The person who has had little or no mathematical training continues to estimate rather than to calculate, and he may form a fairly correct judgment as to what the right answer to a problem must be, although he cannot figure it accurately.

The child trained in school arithmetic often loses entirely this ability to judge approximately what the answer should be. His mind is occupied with the details of calculation in accordance with rules that he has previously followed, and he fails to image the concrete situation and cannot tell, if he has made a mistake, whether his error is small or large. In trying to make the child an exact calculator he is frequently rendered unable to use his practical judgment, because he images only symbols and processes instead of concrete facts. The remedy for this is to treat arithmetic in the grades not as an exact science but as a practical art.

Imagination and problem-solving. One reason why the teaching of arithmetic has been so unsatisfactory to men engaged in practical affairs is that children have had so much drill work and have had so many problems whose conditions they did not and could not image that they follow rules blindly and do not know how to apply their knowledge to new things. A large proportion of the problems in the arithmetic are concerned with transactions with which the child has had little or no experience.

A complete change in arithmetical work is sometimes produced by observing or taking part in laying a carpet, making a box, constructing a sidewalk, or by dramatic representations of business transactions.

A feeble-minded boy, who could not tell what three and four were, could answer correctly the question, "If you were to haul four loads of coal to-day and three to-morrow, how many would that be?" for he was used to hauling coal. In a similar way a normal child who has been selling groceries, in reality or in imagination, may work problems involving such things when he would fail on those concerned with the sale of cordwood, bricks, or bonds. The ability to image the objects with which the problems are concerned, and their relations in the transaction, not only enables the child to use his common sense in judging the correctness of his answer but it enables him to see more clearly what rules will apply to the conditions of the problem.

Some practice in formulating problems is also needed. Children who have successfully used a cooking recipe may fail in reckoning the cost, because, for example, they do not reduce cups to pounds before multiplying by the price. The practical results of arithmetic would be much improved if clearer images of things and operations were formed before rules or formulas were used.

EXERCISES

1. Report observations of children's early experiences in counting and computing.

2. The important part played by familiar symbols in arithmetical processes is shown by giving values to letters, such as $a = 1$, $b = 2$,

$c = 3$, etc., and then, using letters as digits, working arithmetically the following: $c, b, d, e,$

$$\underline{\quad f \quad e}$$

3. How many inch cubes will be required to make a row around the inside of a box that is eight by ten inches, inside measurement? How many two-inch cubes? What is the difference between the cost of six dozen pencils at thirty cents a dozen and a half-dozen pencils at the same price?

4. Show why the old custom of having a great deal of mental arithmetic in the grades was or was not a good plan. This is of course the same as discussing the advisability of keeping the language of arithmetic auditory rather than visual, although concrete imaging and judging of amounts is also usually more prominent in mental than in written arithmetic.

CHAPTER XIX

GEOGRAPHY AND THE IMAGINATION

Geography as a stimulus to the imagination. When well taught, geography gives a better knowledge of one's own environment and stimulates the mind to picture the broader world as it really is. In no subject is the imagination more necessary and useful. Concerned as it is with the earth as the home of man, geography furnishes a natural and varied stimulus to the imagination, whether one is interested in nature or in human beings. It continually presents to the mind natural features, plants, animals, and people different from those with which one is familiar. The student must use images of things known, but must greatly modify them in constructing what is described. These constructive imaginings, which may be entirely in accordance with fact, furnish rich material from which the creative imagination may evolve a realm of fancy, wherein one travels far and sees much that is strange and beautiful.

Geographical language. Real objects, pictures, and word descriptions are extensively used in the study of geography as stimuli for the imagination, but the typical geographical language is diagrammatic and is most used in the form of maps. Various conventional symbols represent different forms of land and water, divisions between countries, cities, rivers, mountains, and the elevations of land, in their proper space relations to each other. A map,

to one who is able to read its language, tells more than could hundreds of pictures, many pages of description, or years of travel and observation. So serviceable are maps that it is not strange that they have been extensively used in teaching geography.

The advantages, however, have been offset somewhat by the fact that so much time has been spent in getting a knowledge of the names and space relations of the symbols of the map that there is frequently little or no mental picturing of the objects represented by those symbols. Most people, when asked to tell what image first comes to the mind when the name of a river, lake, mountain, or city that they had never seen is mentioned, will say that it is the symbol represented on the map. So much is the mind occupied in geographical studies with memorizing symbols and their relations that many pupils do not get even a sufficient knowledge of the language of geography to be able to read maps with any degree of readiness or accuracy. In other words, they cannot look at a map of a country which they have never seen and form a distinct mental picture of what they would see if they visited it.

The method now rather extensively followed of studying the immediate surroundings and expressing the results of that study in the language of the map is helpful in enabling pupils to interpret map language. It is undoubtedly true, however, that some pupils who begin geography in this way later deal with map symbols so much and with so little thought of what they represent that they lose whatever power they had acquired in that line and are unable to image quickly and accurately what the map describes. To avoid this, emphasis should be

placed upon gaining a knowledge of the real thing as well as of the symbols. Extensive reading of travels in other lands and the writing of imaginary journals are helpful in making geography real and interesting and the language of maps intelligible.

Constructive imagination and geography. In no subject is there more demand for the use of the constructive imagination than in geography, and in no subject is its quick and accurate working so helpful. Various tests of school children, however, indicate that in a large proportion of cases the mental constructions are indefinite and inaccurate, although many of them have considerable vividness. High-school graduates were asked, "How long will it take to walk across a bridge over the Mississippi River at St. Louis?" Answers ranged all the way from five minutes up to three weeks. Answers as to how long it would take to float down the river from St. Paul to St. Louis or to climb Pikes Peak were almost equally varied.

Rather extensive questions indicate that the figures used in geography have for most people very little significance, and if they attempt to image what the figures mean, the results are very inaccurate. Many of them are not even able to compare with approximate correctness the heights and distances of objects in their own neighborhood, nor unless they have been told can they give anything like an accurate estimate in common units of measure, such as feet, miles, and hours. They evidently need more practice in comparing estimates of size and distance with measurements as well as more practice in accurately imaging what is described in figures or otherwise.

Geographical imaging and reasoning. Much of what geography teaches may be imaged, and in many cases

little besides vivid imaging is necessary in order to get some of the advantages which come from that study, especially in the way of accumulation of material with which imagination and thought may work. Such image material is helpful in reasoning, but many of the vivid images formed are of little use unless they are associated with knowledge of their meanings and relation.

If vivid images are properly related with general truths, the mental constructions involved in reading a map and the creations of the imagination in representing a journey to an unvisited country will conform closely to reality. Icebergs will not be forming in torrid seas, palms growing in the frigid zone, rivers flowing across mountains, seas draining into lakes, or savages engaged in the arts of civilization.

After a few fundamental truths of geography have been learned, details regarding various parts of the earth may be rapidly gained, because when a few facts are given others may be inferred, and it is not necessary to spend any time in memorizing them. The specific facts of geography are almost infinite in number, but if one has learned a few of them, has acquired the power to image vividly, and knows some general truths regarding the relations of things to each other, it is possible to gain in a comparatively short time all the geographical information one needs regarding any particular portion of the earth.

EXERCISES

1. The terms of geography according to which north is toward the top of the map, south toward the bottom, east to the right, and west to the left, are frequently not readily translated into reality, as will be shown by asking children and others to point in the actual direction of cities or islands with which they are familiar as represented on the map.

2. If asked to represent the St. Lawrence River as flowing down into the lakes, many will do so without questioning the truth of the representation.

3. If you ask which of the Great Lakes has the highest elevation, an image of the map representation of them will be found helpful, but the general truth as to the flow of water must be used in reasoning rather than the idea that "down" on the map means lower in elevation.

4. If possible, try this experiment in two seventh-grade or eighth-grade classes. Have one class study a new country and then write an account of an imaginary trip through it; let the other begin with the purpose of writing such an account and seek for themselves the necessary facts. Discuss the extent of the knowledge gained by the two methods in the same length of time and also the training in habits of study that is given by each method.

5. Discuss the comparative value of storing in memory geographical facts and of learning where to acquire quickly any that may be needed.

CHAPTER XX

IMAGINATION IN HISTORY AND LITERATURE

Enlargement of the social environment through imagination. Both history and literature are chiefly concerned with people and with what they have done. Through history and literature one becomes acquainted with a great variety of individuals and is made familiar with unusual and striking events. The characters differ somewhat from personal acquaintances and from those learned of in geography. History for the most part presents to us unusual people performing unusual acts; literature introduces the most interesting persons in the most interesting situations of life; while geography deals with ordinary individuals engaged in their everyday occupations, but who are interesting to us because they differ so much from the people that we know. The value of both history and literature depends to a considerable extent upon the imagination. If the persons and events described are pictured so vividly that they occupy as prominent a place in our thoughts as memories of persons we have seen and events we have observed, then history and literature have done for us in part what a longer life and a wider social experience would do. We meet in history and literature people who are worth while. We enter into the greatest and the most interesting experiences of their lives, but in all we find the same fundamental characteristics of human beings the world over.

Historical and literary ideals. The importance of the enlarged social environment gained through history and literature is clearly indicated by various studies. People who are known only in imagination often come to play a larger part in our mental lives than real people. This is shown to some extent in the dramatic plays of children, in which characters from history and literature rather than real persons are represented. It is shown still more strikingly in various studies that have been made of children's ideals. When children are asked whom they wish to be like, a great majority of all but the younger ones mention characters from history and literature rather than from among their personal acquaintances. Historical and literary characters are especially suited for serving as ideals because only their most striking and interesting characteristics are shown in outline, and details may be filled in to harmonize with them, while characters in real life are at times commonplace or unattractive. Personal acquaintances observed in various aspects cannot stimulate the imagination as do the men and women of history or literature, of whom we know only a few striking facts.

Dramatics in history and literature. The child's natural method of becoming acquainted with people is to do as they do and find out how it feels to perform such actions. He also lives over again events which he has observed through dramatic representations of them. Words, pictures, and diagrams all have their place as stimuli to the imagination in studying history and literature, but they are not nearly so effective as dramatic action, especially when the pupil takes part in the drama which he has himself planned in part in accordance with his interpretation of events and characters. These dramatic representations

may be very simple and sketchy for younger pupils, and more elaborate, accurate, and consistent in detail for older ones.

Dramatics as an aid in studying history and literature may be used not only in the more usual forms of costuming and "acting of plays" but also by assuming the mental characteristics of great men and performing similar deeds. Probably no high-school pupils ever obtained a more complete knowledge of men and events of the early days of our national history than did a class which organized as the First National Congress. Each pupil assumed the character of some prominent statesman, introducing bills and making arguments as his original had done. Such dramatic representation stimulates the imagination but at the same time brings it under the rigid control of facts and probabilities.

Imitation may greatly help in literary expression of imaginative activity. Pupils may be asked after reading Æsop's Fables to write similar ones showing that "Haste makes waste," or that "Pride goeth before a fall," etc. Again, pupils who have read R. H. Davis's "Van Bibber Stories," Longfellow's "Tales of a Wayside Inn," or other distinctive types of literature, may write stories similar in style but varying in content.

Not only may prose be imitated but also poetry. Songs also may be written and the music for them composed, or stories may be illustrated by drawings. Such constructive and creative work is often done exceedingly well by pupils who have previously shown little interest in literature. After successful effort of his own a child or youth is nearly always more appreciative of what others have done.

Illustrating and writing as a stimulus to the imagination. Another method of stimulating the imagination to effective work in studying history and literature is to have pupils illustrate by drawings the descriptions which they have read or to have them write accounts of events, persons, or organizations with which they are familiar. They will thus get some practice in selecting historical and literary material and in finding words which will properly express the desired thought. This will greatly add to their appreciation of what they read and stimulate them to exercise their imagination in reading between the lines. It is frequently of advantage for pupils to attempt to describe familiar incidents in imitation of model descriptions of other events from history or literature. It is sometimes well to have the same event described from a historical and then from a literary standpoint; the purpose in the one case being to select important facts and state them accurately, and in the other to select interesting characters and happenings and present them in a vivid and entertaining way by adding appropriate details.

Literary expression and imagination. Literature, especially poetry, abounds in figures of speech which are always stimulating to the imagination and suited to the production of vivid images and appropriate feeling. In general, these figures of speech suggest similarities or analogies connecting various objects not ordinarily associated, or they are animistic, intimating that things have human qualities. In good literature such figurative language stimulates the mind to form artistic or humorous pictures. The significance of such expressions may be greatly increased by asking pupils to invent others in connection with common objects and incidents. Surprising

ability may be shown and developed in this way even in small pupils. Such questions as the following are quite sure to stimulate the imagination and will frequently call forth artistic literary expressions. "If a violet became a little girl, what sort of girl would she be?" "If a rabbit became a little boy, what sort of boy would he be?"

In the case of older pupils such questions as the following may be used: "What is happiness like?" "What is sorrow like?" "To what may youth be compared, or age?" "To what may life be compared?" "How would you personify industry or ingenuity?" In giving such questions it may be well to present several model comparisons to start the children to thinking, but the giving of answers which vary from the model should be encouraged.

A primary teacher, seeking to arouse the imagination and call forth poetic and pleasing expressions, asked her primary children to tell what certain phrases made them see or think. Some of the best answers follow. "*Down from the clouds:* Once I saw, after a rain, when I looked out of a window, little paths of light coming down from the clouds." "*Softest light:* One night there was a ring around the moon, and it looked like a soft light." "*Stars:* Friday night the sky was full of stars; they looked like dots of gold sprinkled over the sky." "*Gleamed red with firelight through the leaves:* These words make me think of last fall in a neighbor's yard, when the maple leaves were turning yellow and the veins of the leaves looked like bars of gold." "*A pleasant day:* A pleasant day is like a little girl with a pleasant face."

In response to the question, "If a lily became a person, what sort of person would it be?" one answer was, "A baby is like a lily because it is pure and white and good."

To a similar question regarding a mouse the following answer was given: "A person like a mouse would be a little boy who was very still. He would steal things to eat and would not be easy to catch."

The following are some of the answers given by normal students to similar questions:

I should imagine that if a mouse became a man he would be a short, small, sleek-looking man with black hair combed back smoothly and carefully, a black moustache, and glasses. I think he would wear a black suit and perhaps carry a cane. I think he would be somewhat dudish in appearance and would be quiet and sly in his actions.

I should imagine a violet, if changed to a person, would be a sweet-faced young lady with dreamy blue eyes and light hair. She would dress in some soft white material and perhaps wear a bunch of violets at her belt. I think she would have a beautiful disposition.

If a mouse became a person he would be a short fat person with a very full neck, wearing a high collar. He would carry his chin high in the air. A pair of glasses would be placed on his nose. He would be dressed in a black dress-suit coat and striped pants, carrying a cane. His ankles would be rather small and his feet large, with patent-leather shoes.

If a violet became a person it would be a little girl with a beautiful face and lovely hair. Her dress would be white with scalloped flounces trimmed with green.

In imagining how a mouse would look if he were a person, I think he would be a very neat, sleek-looking man, and bright. His eyes would be a very dark brown, his teeth pearly white and sharp. His hair would be combed very neatly, never a hair out of place, his clothes of the neatest cut in gray.

As for a violet's being a person, I think she would make a very quiet, modest, shy young lady with a very neat and trim blue dress.

EXERCISES

1. Which is more important, that a child should learn many facts and dates in history or that he should form many vivid images of persons and events? Why?

2. To what extent were your ideals in youth derived from persons of whom you read and to what extent from personal acquaintances? Do bad characters ever have any influence upon the formation of good ideals? Illustrate.

3. What is the comparative value to children and young people of being carefully trained in presenting historical events dramatically and of presenting crudely, according to their own ideas, many incidents?

4. Try some experiments in having pupils write imitations of literary selections and report the results.

5. Try also the experiment of having various things personified or special phrases made concrete.

CHAPTER XXI

IMAGINATION IN NATURE STUDY AND SCIENCE

Imagination and observation. Teachers of small children, who have encouraged nature study, especially the study of birds, have been impressed with the fact that many children possess better powers of imagination than of observation. *Better*, as used here, should be understood to mean "freer" rather than "more accurate." It is frequently much easier for a child to imagine birds than it is to find them, and to guess how they look than to observe accurately when there is little time or an obstructed view. Each child is anxious to report as many facts as any of the other children, and if the facts reported excite wonder and admiration, his imagination is stimulated to supply others equally wonderful.

Leaves, flowers, and insects, which can be examined at leisure and of which samples can be brought to verify the reports of what has been seen, may be observed with considerable accuracy, after a little training, by even small children. Good pictures of birds may be a great help in promoting accurate observation. When certain birds are reported as having been seen and are described as they are represented in books, the genuineness of the observation may be determined by questioning the child as to where the bird was seen and what it was doing. A correct image of how the bird looks is an aid in discovering and seeing the characteristics of that bird, but, on the other hand, if careful observation and verification are not

insisted upon, the child may wrongly identify birds as being of the species for which he is looking or of which he has recently learned.

Artistic and poetic study. Objects of nature are sometimes studied, not so much to gain accurate knowledge as to observe their beauty or their interesting peculiarities. In poetry and in other literature their appearance and movements are frequently compared to those of persons. Children are ready to appreciate such analogies and are easily led to take an animistic view of almost anything. Good literature concerned with objects of nature and its seasonal phenomena is abundant, and some of it is suitable to children and may help to make their study of nature much more interesting, without in any way interfering with its accuracy. If the facts observed and described are essentially correct, there is no harm in giving them interpretations more or less fanciful and poetic. Such interpretations should be treated in a light and playful way rather than in a serious and literal manner. They will not then come into serious conflict with practical and scientific ideas acquired later.

Practical nature study. Many careful studies of the interests of children reveal the fact that children are usually interested primarily in what things can do or what may be done with them. This truth is now being recognized in nature study, and children are encouraged to find out whether the plants and animals they have opportunity to observe are useful or harmful. They make a thorough study of plants of useful kinds in order that they may properly care for them. They learn of the usefulness or harmfulness of animals and insects, not simply to themselves but to the community. They readily appreciate the

injuries that may be caused by some of the beautiful insects and the good done by the homely toad, and that birds and other creatures may be useful as well as beautiful.

It is often more difficult to harmonize the sentiments arising from animistic views of nature, especially of animals, with the practical need demanding their destruction. The truth that death is not necessarily painful is of considerable assistance in explaining what may or may not be done to living things.

Scientific nature study. The kinds of nature study already described, if properly carried on, do not necessarily interfere with scientific nature study but may be a good preparation for it by filling the child's mind with images which, when they are associated with the appropriate general truths, will enable him to classify, observe, and interpret his observations. Indeed, the earlier study of nature may really be, to a considerable extent, scientific. When a child is interested he can learn scientific names and the correct terms to be applied to various phenomena as readily as he can the fanciful and babyish expressions sometimes used. In learning such terms and acquiring a correct idea of their significance he should not be given long descriptions or elaborate definitions, but the terms should be closely associated with the things which he is observing in such a way that he will perceive something of their significance. With further observation and use of the terms he will gain a more complete idea of their meaning, and later, if it is thought desirable, exact definitions may be formulated.

In turning to the more scientific study of nature it is not necessary to abandon the practical. The laws of physics and chemistry may be studied in connection with

practical affairs, such as the heating and ventilating of houses and the cooking and preserving of foods. Such training enables one to image many concrete situations in which these laws are manifested and helps to make them clearer and more significant. Children should not be taught to image things merely as others have imaged them, but what others have done should be used in a playful and suggestive way to stimulate the child's own imagination. The important thing in nature study is that the child shall have much sensory experience of the objects and phenomena of nature. The classification of these may come later in the study of science.

EXERCISES

1. Report instances in which the observations of school children have been colored by the imagination and discuss how they may be led to observe more accurately.

2. Try to draw from children their own animistic interpretations of nature and see if you cannot find some that are worthy of poets and ancient myth makers.

3. Children who have the experience of caring for plants and pets and of studying and making collections of objects of nature may have their imagination stirred by attempts to compute the injury done by one fly or the good done by one bird, as well as by the expression of thoughts and sentiments about pets and flowers.

4. Select a lesson as given in some nature-study book and criticize it from the point of view of its truth and its value as a stimulus or in directing the imagination.

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